# amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA


VOL. 46, No. 9 SEPTEMBER 1978

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**COVER PHOTO**

Jenny Wicks VK2NTJ, first licensed lady Novice of the Summerland Amateur Radio Club.—See "The Lady Behind the Microphone", page 25.

Registered for posting as a Publication — Category "B".

# HAM RADIO SUPPLIERS

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# amateur radio

Published monthly as its official journal by the Wireless Institute of Australia, founded 1910.

**SEPTEMBER 1978**
**Vol. 46, No. 9**

**PRICE: 90 CENTS**
(Sent free and post paid to all members)

Registered Office:
2/517 Toorak Road,
Toorak, Victoria, 3142.

**Registered for posting as a Publication — Category "B".**



**Enquiries and material to:**
The Editor,
PO Box 2611W, GPO Melb., 3001

copy is required by the **first of each month.** Acknowledgement may not be made unless specially requested. All important items should be sent by certified mail. The editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying a reason.

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# QSP — 6 METRE BAND

**The amateur frequencies involved in the second of a proposed frequency table for inclusion in the International Radio Regulations, by the Australian Preparatory Group, has been released by the Minister for Posts and Telecommunications and has been fully reported in AR.**

**An area of particular concern to us all, is the proposal for broadcasting to be allocated from 47 to 68 MHz, with the amateur service allocated 52 to 54 MHz on a secondary basis by footnote.**

**The importance of an amateur band at 50 MHz is obvious to the Institute. We all know the achievements of amateurs on this band in the DX field, particularly at the right time of the year when international contacts are common. Of course, for an amateur band to be of any use for international communication, it is desirable for it to be a common allocation in all countries.**

**At present the 50 to 54 MHz band is allocated to the amateur service exclusively in Regions 2 and 3, but not at all in Region 1. Australia, because of the non-standard nature of its television channels has footnoted the television service into the table at 45 to 52 MHz. New Zealand has also eroded part of the regionally-exclusive amateur band.**

**In the early days of TV the whole of the regionally-allocated 50 to 54 MHz amateur band was to be used for TV, and the amateur band moved to 56 to 60 MHz, a band that had been used prior to the shutdown of all amateur stations in 1939 and was used in Europe for a while after the war.**

**The Australian allocation eventually, at least, now coincides with part of the international band. The Institute has felt for some time that in areas where no Channel 0 is allocated the amateurs should be allowed to operate in the full Regional 3 allocation, and has approached the Department attempting to obtain this permission, but without success to date.**

**In Region 1, although there is no amateur band in this part of the spectrum, a number of countries have indicated that they will phase out some of their Band I TV channels. A significant number have licensed 50 MHz amateur beacons, thus indicating a recognition of amateur investigations in this band.**

**All this gives weight to the Institute's view that the 50 to 54 MHz exclusive amateur allocation should be maintained in Region 3 even if, in Australia, we have to put up with our non-standard TV allocation by footnote until Band IV TV broadcasting is opened up.**

**The Institute feels strongly that an exclusive amateur allocation at 50 MHz is of the utmost importance to the amateur service and is working to this end.**

**D. A. WARDLAW, VK3ADW, Federal President.** ■

# QSP

### RTTY

Reports have been received that amateurs have been causing severe interference to amateur RTTY stations. Whilst keenness to monitor our bands, and do what we can to remove any intruders, is most commendable, it is an extremely poor operating habit to give QRM to our own amateur stations in the bands. If you believe a RTTY station, is an amateur band, is an intruder, first get an identification from your local Intruder Watch Co-ordinator, or local RTTY operator, before deciding to chase it away.

### SOLOMON ISLANDS

Keith Roget VK3YQ, VR4AV and H44AV, has now returned from the Solomon Islands and advises that the new prefix for radio amateurs after independence is H44.

### PR VIDEOCASSETTES

The WIA now possesses three amateur programmes on U-matic videocassettes. These are: The ARRL publicity films, the "This Week Has 7 Days" programme and the copyrighted G6CJ aerial circus programme, now fully edited and runs for an hour in black and white. The first two are half hour programmes in colour, with sound tracks. It has been suggested to Divisions that each should acquire copies of the colour programmes for use within each Division. If any club secretary or anyone else wishes to obtain the loan of one or more of these tapes, please address your enquiries to your Division. The Federal Videotape Co-ordinator is John Ingham VK5KG, QTHR, from whom, and only from him, can be obtained the loan of the G6CJ cassette. This is a copyright programme and will only be loaned out to well recommended Division or club officers under certain conditions, which includes postage and packing paid by the applicant in advance (weight is 1 to 4 kg, plus cost of jiffy bag), written undertaking that the tape will not be copied by anyone whilst it is in the applicant's possession, and that the tape will be returned within the period specified. Here now is a wonderful opportunity for the Institute to obtain good publicity and exposure through the efforts of keen amateurs. The production of videocassettes for other programmes is being looked into.

### HISTORICAL MATERIAL

Quite by chance, access was had recently to a press cutting book belonging to the late Vic Nightingall XKK. His daughter, Mrs. Linon, kindly allowed photo copies to be taken of many of the interesting items going back as far as 1910. Another example of obtaining and preserving historical material.

### SEANET 1978 CONVENTION

The 8th Seanet Convention is due to be held in the Marco Polo Hotel, Singapore, from 10th to 22th November. For anyone interested in this and the necessary travel and other information, write to VK6NE, QTHR.

### RED FACES ON 6

Some Australian 6 metre operators will have red faces following the publication of full details of 6 metre DX contacts. A large circulation overseas magazine recently published full details of recent DX contacts including the **frequencies** used.

### APOLOGY TO ARRL

In the May issue of AR reference was made to a report in "CQ" magazine relating to an alleged threatened law suit said to arise under the US anti-trust laws and involving the American Radio Relay League.

Any inference that the report related to anything more than an empty threat is incorrect. In fact, the person responsible for raising the matter has been charged by the Attorney-General of the State of California with false and misleading representation, and cannot now be located.

The WIA regrets that the item was published and apologises to the American Radio Relay League. ■

## STOP PRESS

**WIA OBTAINS ANOTHER PRIVILEGE FOR AMATEURS**

**Novices are authorised to use 3525-3625 kHz effective 8th August, 1978. Letter from P. and T. Dept., Ref. RB4/11/30, will be published in the October issue of AR.**

# EDITOR'S DESK

Bruce Bathols VK3UV

Since the last time I put pen to paper and wrote a few thoughts on current happenings within Amateur Radio, a lot of interesting items have occurred.

Novices have been granted the use of VFOs.

WARC 79 preparations are beginning to liven up.

Ch. 5A problems have arisen again.

Some people have said to me that WARC has been "Flogged to Death"—but in your own interests, don't you think it should be?

You will no doubt have read the report on the Australian Preparatory Group No. 2 (APG 2) published in the July issue (or have you??).

This month we have an excellent article by Michael Owen VK3KI, giving a complete resume of the whole business.

It is pretty solid stuff and most thinking amateurs will certainly take heed—WARC 79 needs to be "Flogged to Death" to make the majority of amateurs become aware of what is happening and to gain more support.

It is your hobby, too, you know!!

. . . .

One sometimes becomes a little tired of certain non-constructive criticisms from some non-members. Criticism I want, lots of it, providing it is not waffle and helps me to produce a better magazine.

One certain VK3 "Z" call WIA critic (no names or pack drill) cannot apparently see the wood for the trees — is a non-member and proud of the fact (it is his prerogative), but I cannot understand why he delights in putting down everything the WIA says or does. Same gentleman doesn't mind using at least three WIA supplied repeaters though.

. . . .

Well the Channel 5A beast has now certainly raised its head with a vengeance, and what is required now is a united approach to the problem—not piecemeal misinformed statements and belting of chests.

For those in States who have Ch. 5A already, the problem is already known, but for others, particularly Melbourne, Brisbane and Adelaide, watch out!! — the worst is yet to come.

Some meaningful negotiations have already taken place at Ministerial level by members of the WIA Executive in June — but there is a long way to go.

Not forgetting Sydney though, as Ch. 5A is already in nearby Wollongong, Ch. 5A is not their problem — but the latest rumour states that Channel 0 could be.

Keep your ears to the ground VK2s and let us have some feedback A.S.P.

Keep watching WIANEWS for up-to-date reports.

. . . .

Keep the articles and photographs rolling in — a good response so far — and remember that this magazine is YOURS, and what you contribute helps to make it that much better.

73s from Bruce Bathols VK3UV. ■

# WIRELESS INSTITUTE OF AUSTRALIA

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**Executive Office:** P.O. Box 150, Toorak, Vic., 3142. 2/517 Toorak Rd., Toorak, Ph. (03) 24 8652.

**Divisional Information** (all broadcasts are on Sundays unless otherwise stated):

**ACT:**
President — Mr. E. W. Howell VK1TH
Secretary — Mr. Ted Radclyffe VK1TR
Broadcasts— 3570 kHz & 146.5 MHz: 10.00Z.

**NSW:**
President — Mr. D. S. Thompson VK2BDT
Secretary — Mr. T. I. Mills VK2ZTM
Broadcasts— 1825, 3595, 7146 kHz, 28.47, 52.1, 52.525, 144.1, Ch. 8 and other relay stations: 01.00Z. (Also Sunday evenings 09.30Z and Hunter Branch, Mondays 09.30Z on 3570 kHz and ch. 3 and 6).

**VIC.:**
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Broadcasts— 1825, 3600, 7135 kHz — also on 6m, 2m SSB and 2m Ch. 2 repeater: 00.30Z.

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Secretary — Mr. W. L. Giells VK4ABG
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**SA:**
President — Mr. C. J. Hurst VK5HI
Secretary — Mr. C. M. Pearson VK5PE
Broadcasts— 1820, 3550, 7095, 14175 kHz; 28.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.

**WA:**
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Secretary — Mr. P. Savage VK6NCP
Broadcasts— 3600, 7080, 14100, 14175 kHz, 52.656 and 2m (Ch. 2): 01.30Z.

**TAS.:**
President — Mr. I. Nicholls VK7ZZ
Secretary — Mr. M. Hennessy VK7MC
Broadcasts— 3570, 7130 kHz: 09.30 EST.

**NT:**
President — Dick Klose VK8ZDK
Vice-Pres. — Barry Burns VK8DI
Secretary — Graeme Challinor VK8GG
Broadcasts— Relay of VK5WI on 3.55 MHz and on 146.5 MHz at 2330Z. Slow morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

**Postal Information:**
**VK1 — P.O. Box 46, Canberra, 2600.**
VK2 — 14 Atchison St., Crows Nest, 2065 (Ph. (02) 43 5795 Tues & Thurs (10.00-14.00h).
VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 41 3535 Sat 10.00-12.00h).
VK4 — G.P.O. Box 638, Brisbane, 4001.
VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton (Ph. (08) 254 7442).
VK6 — G.P.O. Box N1002, Perth, 6001.
VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (incl. with VK5), Darwin AR Club, P.O. Box 37317, Winnellie, N.T., 5789.

**Slow morse transmissions** — most week-day evenings about 09.30Z onwards around 3550 kHz.

**VK QSL BUREAUX**

The following is the official list of VK QSL Bureaux, all are inwards and outwards unless otherwise stated.

**VK1** — QSL Officer, G.P.O. Box 1173, Canberra, A.C.T. 2601.
**VK2** — QSL Bureau, C/- Hunter Branch, P.O. Teralba, N.S.W. 2284.
**VK3** — Inwards QSL Bureau, Mr. E. Trebilcock, 340 Gillies Street, Thornbury, Vic. 3071.
**VK3** — Outwards QSL Bureau, Mr. R. R. Prowse, 83 Brewer Road, Bentleigh, Vic. 3204.
**VK4** — QSL Officer, G.P.O. Box 638, Brisbane, Qld., 4001.
**VK5** — QSL Bureau, Mr. Geo. Luxon VK5RX, 27 Belair Road, Torrens Park, S.A. 5062.
**VK6** — QSL Bureau, Mr. J. Rumble VK6RU, G.P.O. Box F319, Perth, W.A. 6001.
**VK7** — QSL Bureau, G.P.O. Box 371D, Hobart, Tas. 7001.
**VK8** — QSL Bureau, C/- VK8HA, P.O. Box 37317, Winnellie, N.T., 5789.
**VK9, 0** — Federal QSL Bureau, 23 Landale Street, Box Hill, Vic. 3128.

# QSP

**3 CM (10 GHz) BAND JAMMERS**

Ham Presstop in June 1978 Ham Radio refers to another threat to amateurs by some manufacturers planning to make and market police-radar jammers under the "Amateur Radio" label, possibly as "radar calibrators".

**AMATEURS DON'T CARE**

From the June editorial in the Central Coast AR Club Newssheet by Ken VK2YAY comes a further example of the Amateur Ostrich with his head buried in the sand.

With an important meeting looming to discuss the NSW Division's Constitution amendments the editorial laments the usual apathy among our fraternity, and suggests that out of 50 WIA members in the club, five will probably attend the meeting. It is hoped that Ken is proven wrong.

The editorial goes on to say . . . "The point which concerns us deeply is the certainty with which we can make this forecast: summed with deadly accuracy in a recent magazine interview (CB Action) with a self-confessed 'pirate' who said: 'Amateurs don't care.'

In those three words are revealed the major problem of our service — a blithe disregard for matters which affect us all by a majority of amateurs."

It is a pity that it is true — perhaps we shall all wake up after it is too late, and we only have ourselves to blame. ■

# WIANEWS

*Amateurs who use the 6 metre and 2 metre bands are most disturbed about the television channel allocations and projected allocations.*

*AR last month carried a special WIANEWS insert explaining how the Channel 5A came into use. In the body of AR various letters or articles were published concerning Channel 5A extended proposed application.*

*Behind the scenes work is proceeding with the preparation of technical material, opposing 5A, for submission to the Minister, and the need for amateurs to extol the virtues of UHF TV.*

**EDUCATION AREA**

*A 600 question bank on Novice Theory has now been finalised by the Federal Education Co-ordinator and will be presented to the P and T. Department during August. Out of this it is hoped will come sufficient mutually-agreed questions to compile two examination papers typifying the required standard.*

*These two sample papers will then be of use for a reprint in the WIA brochure dealing with the Novice syllabus and study guide.*

**NEXT NOVICE EXAMINATION**

*As at 31st July no news is available from the Department about the date of the next Novice examination. The dates 24th or 31st October or 21st November are under examination.*

**MAGPUBS**

*During late July further supplies of the exceptionally bargain price 1977 ARRL Handbooks began to arrive. After this shipment there should be enough of these Handbooks distributed to satisfy the almost unsatiable demand for some time ahead.*

*Shipments of many other books also arrived and most Divisions should be in a position to meet outstanding orders. New arrivals included the NZART 1978 Callbook, which contains a wealth of information about the radio communication scene in New Zealand.*

*Reasonably priced amateur radio books is one of the many services available to members. Check with your Division or write direct to the Executive office for listings and availability.*

*As many members already know, Magpubs also processes subscriptions to the more popular overseas amateur radio magazines such as QST, VHF Communications and others. Unfortunately the prices of these subscriptions have risen sharply during the past year or two by virtue of increased source prices and movements in the exchange rates.*

*During the past year many complaints have been received relating to the non-receipt of one or more issues of several overseas magazines. Unfortunately there is no known way of discovering whether the missing issues were never despatched or were posted but vanished en route. Observations tend to confirm that the troubles arise at source and not in transit.*

*Subscribers through Magpubs for overseas magazines are advised to write to Magpubs when it becomes quite clear that any issue is missing. Enough time should elapse, however, to cater for delays in transit caused by strikes and other occurrences. Earlier this year overseas mails were subject to much disruption, but the situation appears to have become normal once again.*

*Many members who subscribe through Magpubs have written direct to the publishers in respect of missing issues but experience shows that this is almost a waste of time. Perhaps the ultimate answer might be for Magpubs to order and distribute monthly copies from Melbourne, but this would result in increased rates because of double freights or postages. As things are at present, Magpubs is the "meat in the sandwich" and erroneously receives the blame for missing issues. Subscribers should remember that complaints to the publishers by the Institute usually, but not necessarily, always, achieves results.*

*One subscriber complained he had not received a particular publication for seven months although he had paid for a full year of twelve issues and this had not expired. A letter to the publisher resulted in the subscriber receiving all seven issues in one parcel two or three months later. Something had gone wrong with the publisher's computer label print.*

**EDP**

*The changeover from the 550 to the 6700 computer of all the WIA membership records seems to have been achieved without too many problems. The change enabled Divisions to receive a greater variety of printouts than formerly and the AR address labelling system was unaffected except for the formatting change and the addition of call sign plus two extra digits to cater for zones.*

*Unfortunately it proved impossible to carry out a number of changes in the programmes relating to subscription information and accounting in general. The anniversary, or cyclic, subscription billing of members is a case in point with the result that every member will still receive his subscription notice in December, whether he is a new or continuing member.*

*New members joining as late in the year as November and paying their subscription for a full year are surprised to receive a subscription for a small amount during December. And if they ignore this, the computer lists them as unfinancial with the consequent suppression of the AR address label in March-April. In fact they are of course entitled to, and have paid for, AR through till the following October in the case quoted.*

*This is a difficult problem to overcome because there are so many different subscription rates as between one Division and another. The machine was set with a low threshold of $1.00 for this very reason. In other words, if a member owed less than $1.00 for next year he would not be flagged unfinancial and consequently his AR address label would not cease. At the moment each member owing small amounts has to be manually flagged financial at the very time that everybody in the office must concentrate on processing incoming money.*

**SUBSCRIPTION NOTICES**

*Changes are in store for the 1979 subscription notices. Alterations will be made so that members receive a "double" notice (notice plus counterfoil) to enable them to retain one portion for their own records. The other portion would be detached and accompany their payments in the same way as occurs with gas, electricity and many other bills. Thrifty members will also realise they can return their payment in the same envelope which was used to send out the notice to them.*

*This year there seem to have been more complaints than usual that payments went astray in the mail. Every case investigated has revealed that the member's cheque never went through his bank account but this is little consolation when intervening ARs fail to arrive. So many new members came into the system this year and so many late payments arrived that stocks of AR for April and May became exhausted. For economic reasons, good sense dictates that extra copies of AR, over and above the estimated distribution quantity, should be kept to the barest minimum.*

*This is only one of the problems associated with late payers. Extra expense to the Institute is yet another problem, especially if reminders have to be sent out. The extra expense in respect of only one or two unfinancials is small, but unfortunately it is not restricted to a handful. And many, looking at the records, appear to be "professional" late payers year in and year out. If too many adopt this practice there is no answer except to increase the annual subscriptions in compensation.*

**FIRE IN MAILING SERVICE**

*On the night of 29th July the factory above the AR mailing service, Automail (Vic.) Ltd., caught fire. Although the fire itself damaged only the rear portion of the Automail premises where*

*our stock of AR envelopes was stored and was a write-off, the rest of Automail suffered water damage.*

*Fortunately, August AR had not yet been delivered for mailing and the labelled envelopes on a pallet received only minor superficial water damage. Only one set of inserts for the VK2 SW Zone Convention had been on hand. These were a write-off. Replacement ARs and missing copies on hand for mailing were also a write-off.*

*It is too early to forecast how this will affect future issues but meanwhile we know the Automail staff will do everything they can to overcome their problems in the quickest possible time.* ■

# CONSERVATIONISTS UNITE

**Enlightened self interest is one of the most potent forces there is, especially when people's interests coincide, and they unite to get action.**

**SO WHAT ARE WE ON ABOUT NOW?**
It's about how you and I can take action to remove intruders from our bands, more especially the HF portions.

**PLEASE READ ON —**
Do intruders ever get shifted? Yes they do, and examples have been given in my column from time to time.

Japanese fishing boats on 3.5 MHz are no longer using that band (exclusive to the Amateur Service in Australian waters), following complaints from the WIA to our P. and T. Department (see February 1977 AR, page 25). But we do not always succeed although reports after reports are furnished. Take another example, this time abortive, the Russian "woodpecker", which since 1976 has caused us all more grief than any other source of interference.

Complaints have been initiated by the FCC in the USA, by the British Post Office in the UK, and nearly every European country Administration, but it still persists, and how! Not quite as potent as of yore, but still there. Variations of this pulse transmission format as noted to date are—

1. Very wide bandwidth — 100 kHz or more.
2. Narrow bandwidth — 30 kHz or less.
3. Long unbroken transmission — 30 min. or more.
4. Short bursts — 5 to 60 seconds.
5. High speed pulses — 25 per sec. or more.
6. Slower pulses — 3 to 5 per second.
7. Operating on two or more frequencies at the same time.
8. A single transmission moving up and down a particular band.
9. Two transmitters moving up and down a band.
10. A different sound that can almost be heterodyned.
11. An extremely strong single pulse at about one second intervals overriding one or other of the above.

Maybe your report will identify yet another variation.

Please refer my column in AR February 1977, page 25; March 1977, page 32; July 1977, page 26.

It's a sad reflection on our unenlightened disinterest that less than 10 licensed Amateurs in the whole of VK lodge any reports at all on any intruders, and there are over 8,000 of us. This doesn't give our P. and T. much encouragement to protest on our behalf, does it?

**So back to our headline.**

If in any month only 10 per cent of us took 5 minutes to post off a report on intruders the P. and T. would receive 10,000 reports a year. Think of it, that would exert quite a lot of leverage, don't you think?

**HF band conservationists, unite!**

Alf Chandler VK3LC,
Federal IW Co-ordinator. ■

# AMATEUR OSTRICHES AND CHANNEL 5A

Written by Ron Harrison VK3AHJ
and submitted by the Channel 5A
Action Committee, WIA VK3 Division
412 Brunswick Street, Fitzroy, Vic. 3065

**In the interests of all amateurs, whether WIA members or not, this article has been produced for information and hopefully your further interest will be generated. "Amateur Radio" and "Amateur Radio Action" is publishing this material in a joint effort to attempt to obtain your support for the Action Committee.**

Future shock? Over-reaction? Rubbish?

I don't think so.

My view of the future of Amateur radio is partly summed up in an editorial comment in the prestigious American Ham Radio Magazine "QST" . . . "has Ham Radio a (any) future?"

There are enough pressures on the Amateur bands from the various spectrum users without something like a Channel 5A allocation in capital cities to threaten a prime, much used and much enjoyed Amateur band like our two metre allocation.

Sincere, dedicated and hard-working Amateurs like Peter Wolfenden (VK3ZPA) tell that people are sick of hearing about Channel 5A. One assumes from this kind of comment that the Channel 5A threat has been receiving, and still is receiving, sufficient publicity. The hard evidence indicates to me that not nearly enough people, Amateurs in particular, are getting excited enough to get off their butts and join the fight.

I support this statement with a statistic from the Australian Amateur Radio Callbook (1977 edition). I notice that about 2400 VK3 call signs are listed. In response to an appeal to forward copies of the Channel 5A protest letter to the WIA 5A committee, about 150 have been received.

**(Copies of this letter are available from the Ch. 5A Action Committee — address at top of page.—Ed.)**

Allowing that a substantial number of Amateurs (and non-Amateurs) sent this letter direct to Mr. Staley, I smell a strong odor of complacency, indolence and indifference among most of VK3 and, presumably, interstate Amateurs as well. I would be delighted to be shown that my olfactory sense is in some way defective.

Don't you guys care whether our hobby survives in anything like good shape? Have you forgotten about Channel O television and six metres?

I can understand that dyed-in-the-wool high frequency DXers, or any Amateur who does not use two metres, are feeling secure and that their band is not threatened by Channel 5A.

I HAVE NEWS FOR YOU! It was six six metres in 1965. It is two metres today and it could be your favourite band tomorrow. All licensed Amateurs are morally obliged to join the growing band of Hams who now clearly see that threats to the Amateur service — such as Channel 5A — must be resisted.

So, get with us, all of you, the silent majority which has not yet committed itself to action to dissuade the Government from its plan to consider Channel 5A for capital city use.

Now that I may have succeeded in getting you worked up enough, you may ask: "How do we get involved?"

At this stage, simply!

If you live in a city or near city electorate, use your Federal Member of Parliament — you pay him through your taxes — to present your objection to Channel 5A television allocation to the Government and to Cabinet.

In a country electorate, where distance may be a problem, make sure you write or telephone.

The Minister for Posts and Telecommunications, Mr. Staley, to his credit, has been quite open in stating that the final decision on Channel 5A will be made by Cabinet. Mr. Staley is not in the Cabinet.

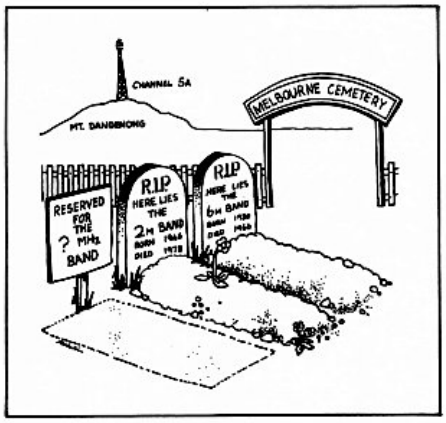
Your Federal Parliamentarian, contacted either by letter or personally — and remember in the current atmosphere an "eyeball" is worth a thousand letters — should take your objection to Cabinet members, and should confirm this in writing with copies of correspondence.

This is the single, most effective action that you can take at this time.

Watch WIANEWS and listen to Sunday morning WIA broadcasts for further follow-up action as the situation demands.

Remember, all you Hams out there in Amateur radio-land, there is a very hard-working group called the 5A Committee, headed by its able chairman, Col Fisher (VK3YII), doing quite a lot to try to save the two metre band from the same fate that befell six metres — for your benefit. The committee needs your support. Without it, you can write off two metres right now!

Technical, financial, or any other input that may assist the crusade against Channel 5A is urgently required, and may be passed on to the 5A action committee through Col Fisher (VK3YII), Les Jenkins (VK3ZBJ), Eric Buggee (VK3ZZN), or Ron Harrison (VK3AHJ). Inputs should be passed to the regional WIA branch in your




State for forwarding to the VK3 5A committee.

Mandatory reading, in conjunction with the foregoing, is the excellent "WIANEWS Special", which appeared as an insert in "Amateur Radio" last month. This concise history of the two metres vs. television conflict, prepared by David Wardlaw (VK3ADW), and Peter Wolfenden (VK3ZPA) illustrates the points that I have mentioned.

If one has to be charitable, the label "cynical" could be applied to some of the documents coming from Government sources on the subject of co-existence of the two metre band and the VHF and UHF television channels.

How would you react to receiving a letter from the Prime Minister's Department, in reply to your objection to a 5A installation going into service in your area, by saying quite bluntly that you may be required to limit your hours of operation to non-television program times? This has happened to Steve (VK3OT), at Hamilton.

Unlike the Channel O destruction of six metres, the Amateur radio fraternity has been fortunate, this time, to have received a warning well before a 5A "happening". This is a golden opportunity to use this breathing space to get organised against 5A.

**I appeal to all readers not to waste this opportunity in our efforts to save the two metre band.**

Rumors about 5A have been flying about as you may expect. The original alert in "The Age Green Guide" was almost a rumor. One of the rumors most damaging to the Amateur cause currently floating around is that for this reason or that reason some particular non-Amateur services will interfere with 5A reception and, therefore, we may relax.

While some of these rumors have some foundation, I can assure you that you are committing a Cardinal sin if you think that you can relax on the basis of this type of argument.

There are many, many reasons for the Government going ahead with Channel 5A and unless you are fully aware of all the facts, disregard the rumors. If you want the facts on any aspect of Channel 5A and two metres, please contact the chairman of the 5A committee, Col Fisher (VK3YII), QTHR.

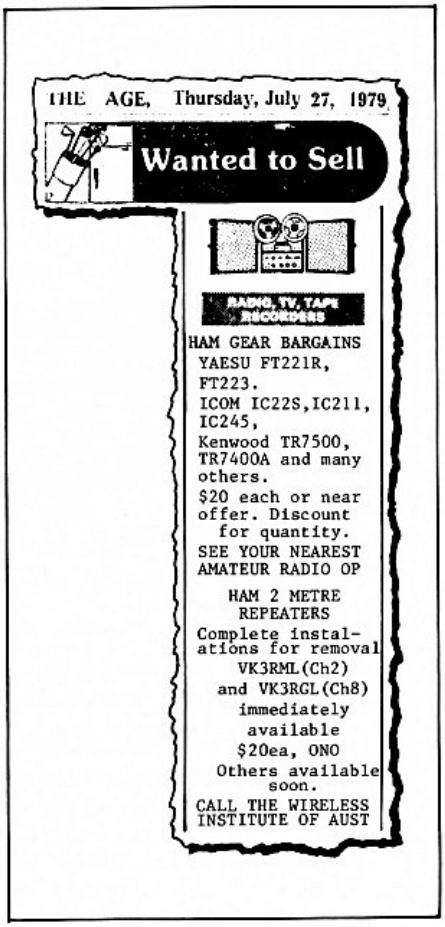
Finally, let me return to my little cartoon. imagine that your immediate reaction on seeing this was "it could not happen". I have MORE news for you . . .

**From experiments that have been conducted and have been reported, interference from perfectly legal two metre Amateur transmitters into television sets on 5A is much worse than anything you have heard about on Channel O and six metres, due to the increased bandwidth of the television tuners at the higher frequency of 5A (137-144 MHz).**

I don't think I need to mention the number of two metre stations currently active in relation to the number of six metre stations affected by Channel O or the several million dollars worth of two metre gear sold by Australian Ham gear outlets during the past several years.

From this point it does not take too much brain power to figure out how much two metre equipment, and how many two metre repeaters will be on the market if Channel 5A appears in even a few capital cities.

So, unless you are prepared to resist the Government's Channel 5A proposal, it would be provident to offer your two metre gear for sale as soon as possible to avoid trying to sell your gear on a flooded market, perhaps some time next year. ■


THE AGE, Thursday, July 27, 1979

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Last month I trusted that my 16 crates of $50,000 order of Hygain antennas would be here late July 1978. Sorry, delays occur like Murphy's Law. I placed the order early May and was promised shipment by early June, but now things have been held up until late July 1978, to arrive in Sydney during August and, if the container depot and wharfies are prepared to co-operate, I should have the lot in our warehouse late August 1978.

The Japanese Yen now costs 10 per cent more in Australian dollars than only six weeks ago! Fortunately the U.S. dollar antenna imports are not affected and those prices remain the same, at least with me; I am not in the highway robbers league, nor do I raise prices of existing stock as some others seem to do. Where P.O.A. is mentioned, it simply means that I do not yet know what I shall have to pay for our next imports from Japan.

**HYGAIN ANTENNAS:**

| | |
|---|---|
| 18-AVT/WB 10-80m vertical 23 ft. tall | $125.00 |
| TH6-DXX 10-15-20m senior 6 el Yagi 24 ft. boom | $300.00 |
| TH3-MK3 10-15-20m senior 3 el Yagi 14 ft. boom | $240.00 |
| TH3-JR 10-15-20m junior 3 el Yagi 12 ft. boom | $175.00 |
| 204-BA 20m 4 el Tiger Yagi 26 ft. boom | $190.00 |
| HY-QUAD 10-15-20m full size Cubical Quad | $260.00 |
| 11m 5 el Yagi, reduce size slightly for 10m | $70.00 |
| 2m 5 el Yagi with balun 7 ft. 3 in. boom | $25.00 |
| 2m 8 el Yagi with balun 12 ft. 6 in. boom | $30.00 |
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**YAESU MUSEN PRODUCTS:**

| | |
|---|---|
| FT-101E 10-16m AC/DC w/speech processor | P.O.A. |
| FT-901D Deluxe AC 10-160m digital transceiver | P.O.A. |
| FT-7 Mobile 10-80m 20W 12V DC transceiver | P.O.A. |
| FL-2100B 10-80m 1200W Linear Amplifier | P.O.A. |
| FRG-7 .5-30 MHz general coverage receiver | P.O.A. |

**OTHER TRANSCEIVERS:**

| | |
|---|---|
| ATLAS 210X 10-80m Mobile transceiver w/HD cable | $825.00 |
| FDK MULTI QUARTZ-16 24 ch. 10W 12V DC 2m transceiver w/xtals for repeaters 1-8 and ch. 40 and 50 | $175.00 |
| ICOM IC-202 2m SSB portable transceiver | $175.00 |
| ASTRO 200 modified for latest circuitry including SWR/mismatch overload control | $750.00 |

**SPECIALS FOR NOVICE LICENSEES:**

| | |
|---|---|
| Transceivers for 10m coverage, AM/USB, 15W PEP; SIDEBAND SE-502 240V AC/12V DC 23 ch. 28.3-28.6 SWR/RF meter | $150.00 |
| UNIVERSE 224M 12V DC 24 ch. 28.480-28.595 MHz in5 kHz steps, Clarifier operates on receive and transmit giving virtually continuous crystal controlled operation | $125.00 |

**ROTATORS:**

| | |
|---|---|
| CDR HAM III rotators on order, expected available early October 1978. | |
| KEN KR-400 Azimuth rotator w/28V AC control box | $115.00 |
| KEN KR-500 Elevation rotator w/28V AC control box | $140.00 |

**KENWOOD PRODUCTS:**

| | |
|---|---|
| TS-520S 10-160m SSB/CW transceiver 240V AC | P.O.A. |
| TS-820S 10-160m SSB/CW w/Digital readout | P.O.A. |
| DG-5 Digital display for the TS-520S | P.O.A. |
| TV-506 6m transverter | P.O.A. |
| TV-502 2m transverter | P.O.A. |
| AT-200 Antenna matchbox | P.O.A. |
| DS-1A DC-DC converter | P.O.A. |
| DK-520 adaptor for DG-5 to TS-520 use | P.O.A. |
| TS-700SP 2m all-mode transceiver | P.O.A. |
| LF-30A low pass anti-TVI filter | P.O.A. |
| VFO-820 external VFO for TS-820S | P.O.A. |
| VFO-520S external VFO for TS-520S | P.O.A. |
| SP-820 external speaker for TS-820S | P.O.A. |
| SP-520 external speaker for TS-520S | P.O.A. |
| YG-88C CW filter for TS-820S | P.O.A. |
| YG-3395C CW filter for TS-520S | P.O.A. |
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| PL-259s — all types — in line splices | $0.75 |
| SO-239 2 hole or single hole w/lock nut | $0.75 |
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| 3- and 4-pin mic. sockets, 3- and 4-pin in-line mic. sockets | $0.85 |
| SWR-50A 3.5-150 MHz 1 kW twin meter SWR/power meter | $22.00 |
| Bumper Mounts with 3/8 in. 24 thread ant. mount | $7.00 |
| Gutter Mounts with 3/8 in. 24 thread ant. mount | $4.50 |
| 5 metre RG-58U with PL-259 one end | $3.00 |
| M-ring body mount | $3.00 |
| GLP right-angle RG-58U to SO-239 w/lock nut and weatherproof cap | $3.50 |
| MLS right-angle RG-58U to PL-259 | $0.90 |

All prices quoted are net, ex Springwood, N.S.W., with cash order, subject to change without prior notice. All risk insurance is free; freight by air, road, rail or post at cost. Comet/collect preferred. All orders cleared on a 24 hour basis after receipt of payment.

ARIE BLES (VK2AVA), Proprietor.

ROY LOPEZ (VK2BRL), Manager.

# A 40 WATT LINEAR AMPLIFIER ON 28 MHz FOR $35.00

**Having modified a 23 channel 11 metre transceiver for 10 metres conditions will often appear when one is able to just about work the world on 3 watts AM or 12 watts PEP. However under some conditions such as mobile operation or maximum local coverage, communications' duration and range can be enhanced by an increase in power level. At present I am trying to work all Australian States on 3 watts of AM, a task I achieved during the 11 metre amateur allocation and hope to repeat on 10 metres. So as not to miss out on the fun of QRP, the amplifier is often on standby in case required.**

Sam Voron VK2BVS
2 Griffith Avenue, East Roseville 2069

The inexpensive solid state linear amplifier to be described has been found to be reliable for both base station and mobile operation. Using a typical CB transceiver, the Hygain V, modified on to 10 metres this amplifier produces 40 watts PEP using a single 2N6084 RF power transistor. For novice use the drive can be decreased to comply with the 30 watt PEP limit or alternately the cheaper 2N5591 RF power transistor can be substituted to produce about 25 watts PEP.

The 10 metre amplifier is shown in Fig. 1. The variable capacitors C1 and C2 are part of the 50 ohm impedance input tuning network. This network is adjusted for maximum transfer of signal into the base of the RF power transistor.

Variable capacitors C3 and C4 are part of the 50 ohm impedance output tuning network and is adjusted for maximum power transfer from the collector output circuit into the antenna.

When we are transmitting we want the low power drive signal to be applied directly to the transistor for amplification but when we are receiving incoming signals we want to bypass the transistor and connect the receiver directly to the antenna. We may use a relay to achieve this antenna changeover. This relay can be operated manually by a front panel switch during SSB and CW operation or automatically by an RF detection switch effective when using AM operation. See Fig. 2.

The amplifier is biased for class B operation. The 1 K and 12 ohm resistors provide the standing current required for linear operation. Decoupling capacitors are found on the positive supply lead to ensure that RF does not pass through the supply leads. The 4 diodes in parallel represent a low forward resistance thus allowing DC to pass when the correct polarity supply is connected. If the wrong polarity is connected the high reverse bias resistance of the diodes protect the amplifier from damage. A further protection is available by running the positive supply lead via a free set of relay contacts in such a way that voltage is only supplied to the RF transistor when the relay is in the transmit position. This reduces the possibility of self oscillation which may result under some conditions prior to alignment when no drive conditions exist. RFC1 in the collector supply line is a parasitic stopper used to minimize the possibility of parasitic oscillations. To shield the input and output circuits and thus prevent unnecessary feedback between them a sheet of metal isolates t the input and output main tuned circuits

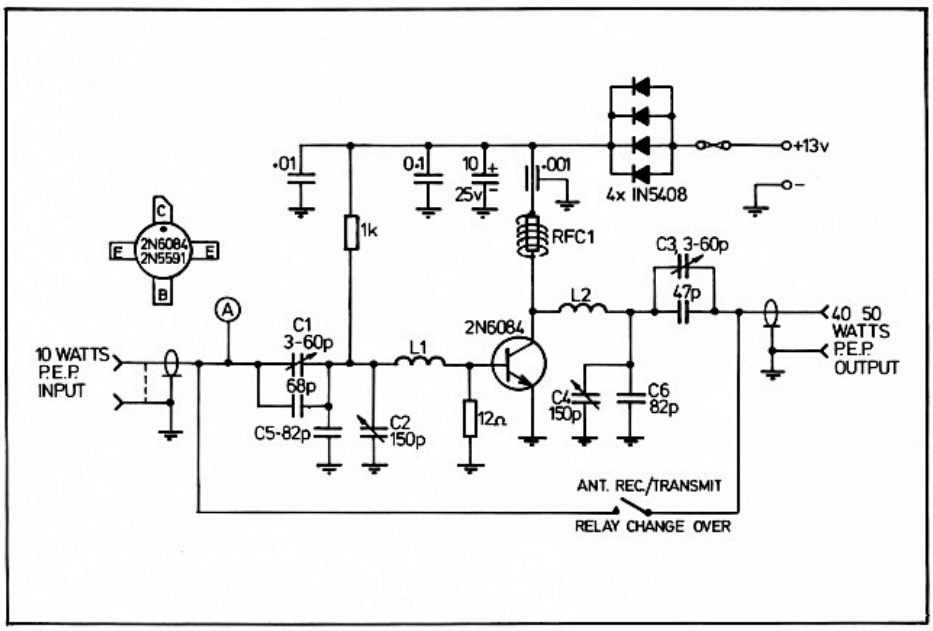


**FIG. 1: Circuit of the 40 Watt 10 Metre Linear Amplifier**

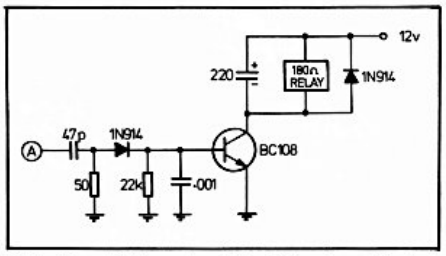


**FIG 2A: Automatic RF Detection Switch to Activiate the Antenna Change-over Relay.**

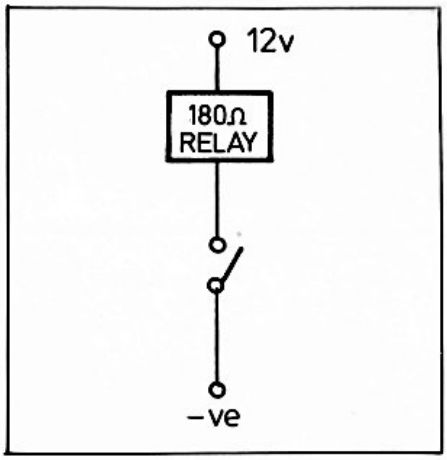


**FIG. 2B: Manual Activation of the Antenna Change-over Relay.**

The operation of the automatic change-over relay circuit, Fig. 2A, is such that when RF is present at point **A** a part of it is rectified by the diode and biases the BC108 so that it conducts, thus allowing the relay to operate to the transmit position.

**10m LINEAR AMPLIFIER PARTS LIST**

**Transistor:** 2N6084.

**Diode:** 4 — IN55408.

**Resistors:** 12 ohm 2 Watt, 1K 2 Watt.

**Capacitors:**

2 — 150 pF air-spaced variable.
2 — 3 to 60 pF trimmer variable (Philips type.
2 — 82 pF disc.
1 — 68 pF disc.
1 — 47 pF disc.
1 — 10 uF 25V tantalum electrolytic.
1 — 0.01 uF disc.
1 — 0.1 uF disc.
1 — 1000 pF.
Inline fuse holder, 5 amp fuse.

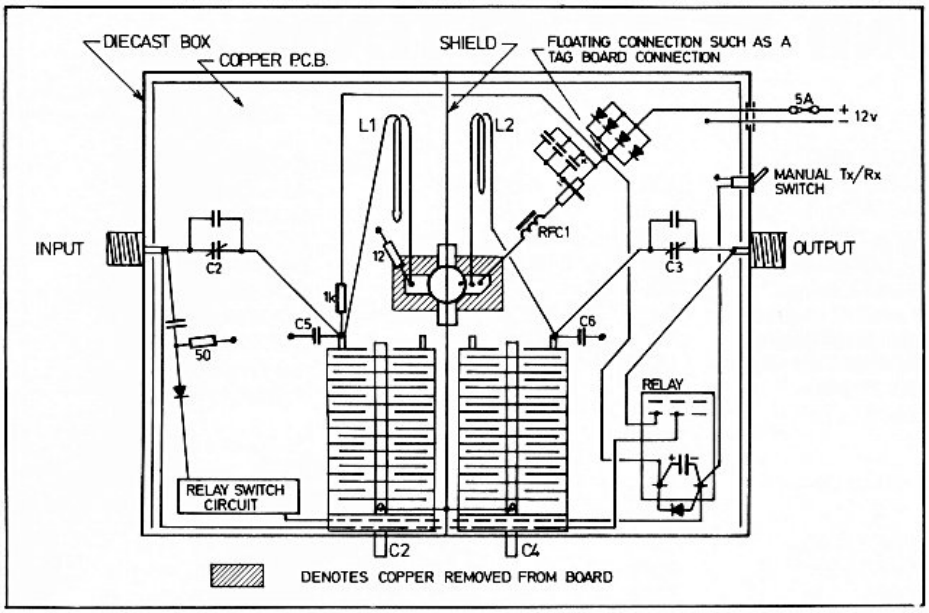


**FIG. 3: Layout of the 28 MHz Amplifier**

PCB (printed circuit board) — 3 in. by 4 in. Diecast box 3 in. wide, 4 in. long, 2in. high. Two coaxial RF panel sockets, type 50-239. Two coaxial RF panel sockets, type S0-239.

**Coils:**

L1 — 2 turns of 1¼ in. diameter 18 gauge wire (enamelled), space ¼ in. apart.

L2 — 2 turns of 1¼ in. diameter 18 gauge wire (enamelled), space ½ in. apart.

**RFC1:** To make up this radio frequency **RFCI:** To make up this radio frequency choke wind 5 turns of 20 gauge enamelled wire, close wound, around a 100 ohm 1 watt resistor.

### RELAY SWITCHING CIRCIUT PARTS LIST

**Transistor:** BC108.

**Diode:** 2 — 1N914 signal diodes.

**resistors:** 50 ohm 2 Watt, 22K ¼ Watt.

**capacitors:** 220 uF, 16V electrolytic, 47 pF disc, 0.001 uF disc.

**Relay:** Multi-contact 180 ohm coil resistance.

### CONSTRUCTION

Drill a hole in the two centre ends of the diecast box and fit the coaxial sockets for the input and output 50 ohm coaxial connections.

Drill a small hole at the output end of the box, the bottom right-hand end, for the two 12 volt leads. A grommet of appropriate diameter may be used for this hole. The 12 volt lead should incorporate the typical fuse holder used on car electrical leads and a 5 amp fuse should be used.

Drill four holes to hold the PCB to the diecast box and then drill a hole in the centre of the diecast box and the PCB. It may be necessary to attach two or three washers on each screw between the box and the PCB so that the PCB is mounted slightly above the box bottom so as to give the power transistor a good mechanical fit. Silicon grease applied at the point of contact between the diecast box and the 2N6084 RF power transistor may be used to enhance the heat transfer from the transistor to the diecast box which can act as a heat sink.

### PREPARING THE PCB

Most of the components in this project are directly mounted on to the copper side of the PCB. Other connections are made from points on the two 150 pF variable capacitors which are mounted above the PCB.

In preparing the PCB scratch out the copper required for the transistor connections, see Fig. 4.

### WIRING IN THE CIRCUIT

(1) Screw on the PCB, the 2N6084 and solder it on to the PCB.

(2) Screw in the shield which separates the input and output circuits. This can be a piece of metal partitioning off half of the PCB with a small slot at the centre bottom which will allow a good fit over the transistor cap. The shield could be 3 in. wide by 1½ in. high, such that the diecast box cover can be screwed on without difficulty. ¼ in. of the shield bottom can be bent at 90 degrees and two self-tapping screws used to hold it to the PCB.

(3) Solder in RFC1 with the shortest lead possible to the collector.

(4) Solder in the components in the 12 volt supply line (a tag strip may be used for mounting the 4 power diodes). The bypass capacitors can be connected directly

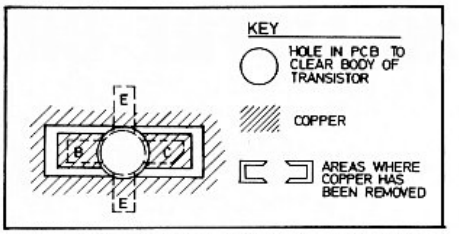


**FIG. 4: Showing preparation of the Copper Board for Mounting the RF Power Transistor.**

across the feed through (1000 pF = .001 MF) capacitor. This capacitor can be mounted horizontally with the earth end soldered on to the copper and the 2 feed through ends floating above the copper board.

(5) Solder in the 12 ohm and 1 K resistors using the shortest leads possible to the base.

(6) Mount the two 150 pF variable capacitors on the side of the diecast box. The earth end of both can be connected to the top of the shield.

(7) Mount the remaining components and coils L1 and L2.

(8) Mount in the relay switch circuitry on a tag strip as well as the relay and associated wiring.

(9) Drill two holes on the top cover of the diecast box which will allow you to vary C1 and C3.

### TUNING UP THE 10m LINEAR

Alignment is carried out in the centre of the 23 channel system on channel 13 (28.450 MHz) with an RF power meter connected at the output of the linear and an SWR meter between the exciter and the linear. The diode from the relay switching circuit is removed from the S0239 connector so that only the manual change-over switch is operative. Connect a 50 ohm 50 watt dummy load to the RF power meter to ensure that initial aligning does not interfere with stations operating on the air. See Fig. 5.

Tune C2 and C1 for minimum SWR to the input circuit of the linear until a low SWR for the exciter has been achieved.

These adjustments should be done for a few seconds at a time to avoid damage to the exciter's output transistor which may result from high SWR conditions.

Tune C4 and C3 for maximum power out of the amplifier into the dummy load.

If at any time current is being drawn by the amplifier when no drive is being applied to the amplifier remove the voltage from the transistor via the manual switch and realign it. ■

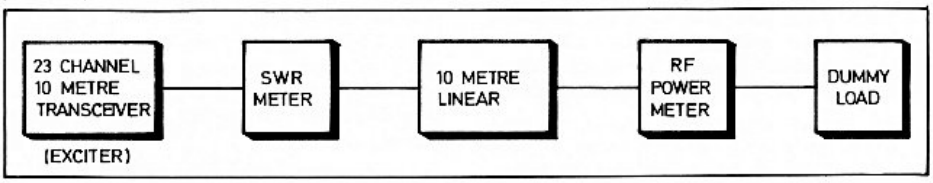


**FIG. 5: Test Equipment Layout for Alignment of the 10 Metre Linear**

# 20 METRE GROUND PLANE ANTENNA

Ron May VK1PM
74 Brereton Street, Garran 2605

**Grounded vertical antennas with a tapped feed point, the so-called gamma-match, are well known. A gamma matched vertical antenna which is ⅜ wavelength in height was found to have useful advantages for 20 metre band operation.**

The advantages were:

1. It satisfied the primary objectives of occupying a minimum of space with maximum efficiency of radiation.
2. It was easy to construct from available materials at low cost.
3. It was more effective on 20 metres than an existing well known multi-band trapped vertical antenna.

The improvement in efficiency over the usual ¼ wavelength vertical or trapped multiband vertical antenna is obtained by a combination of factors each small but adding together significantly.

1. The angle of maximum radiation is reduced.
2. The antenna aperture is greater.
3. The base radiation resistance is increased resulting in reduced ground current losses.
4. Better impedance matching.
5. Increased bandwidth.

Referring to the drawings, the antenna was constructed of sections of ⅜ in., ½ in., ⅝ in. and ¾ in. aluminium tubing adjacent sections of which closely fitted each other. A pair of 1 in. slots are cut in each end of the sections over which "Jubilee" hose clips are tightened when the adjacent ends are telescoped for about 6 to 9 inches.

U-bolts clamp the base of the antenna to a 2 ft. piece of 3 in. x 3 in. slotted angle steel (Dexion or similar). Two 4 in. pieces of ½in. aluminium "U" section clamp the top of the gamma section to the antenna for an outside spacing of 2 in. The stand-off insulators are cut from ¾ in. fibre glass rod and attached between the angle steel and gamma section by self-tapping screws inserted in holes drilled coaxially in the ends of the insulators.

The slotted angle steel can be bolted to a similar horizontal section as a base for mounting to any convenient chimney, post, etc. In this case, the base was mounted on a car port metal roof using a left over piece of steel decking (Stramit, Monodek, etc.) to which the antenna base was bolted. The piece of steel decking was then clipped over the car port roof decking so that holes were not made in the roof.

The gamma match element should be 8 ft. long. The clamp is set at 7 ft. 6 in. from the base.

Soldering or other direct connections are not required between the base and ground plane steel decking because of the small antenna base impedance.

Four ¼ wavelength radials (16 ft. 8 in.) could be used for the ground plane if more convenient.

The series air-spaced variable tuning capacity should be covered against rain and dew by a small plastic container.

To tune the antenna, the transmitter is tuned to the centre of the 20 metre band on a dummy load of the same impedance as the coax line to the antenna. This can be done on low power with a few 1 watt non-inductive resistors in parallel to give the right value. The antenna is then connected in place of the dummy load. The series capacitor in the gamma section is tuned for minimum SWR, which should be 1 : 1 at approximately 80 pF. If a satisfactory SWR is not achieved, the length of the antenna should be adjusted and the capacitor retuned.

It was found convenient to connect the SWR bridge at the antenna end of the coax line and to make the adjustments while remotely keying the transmitter on CW at the minimum power required to operate the meter.

The antenna could be scaled down to 15m or 10m operation by taking respectively three-quarters or half the lengths shown for 20m for the antenna and gamma sections. ■

*(Reprinted from "Forward Bias", March, 1978)*

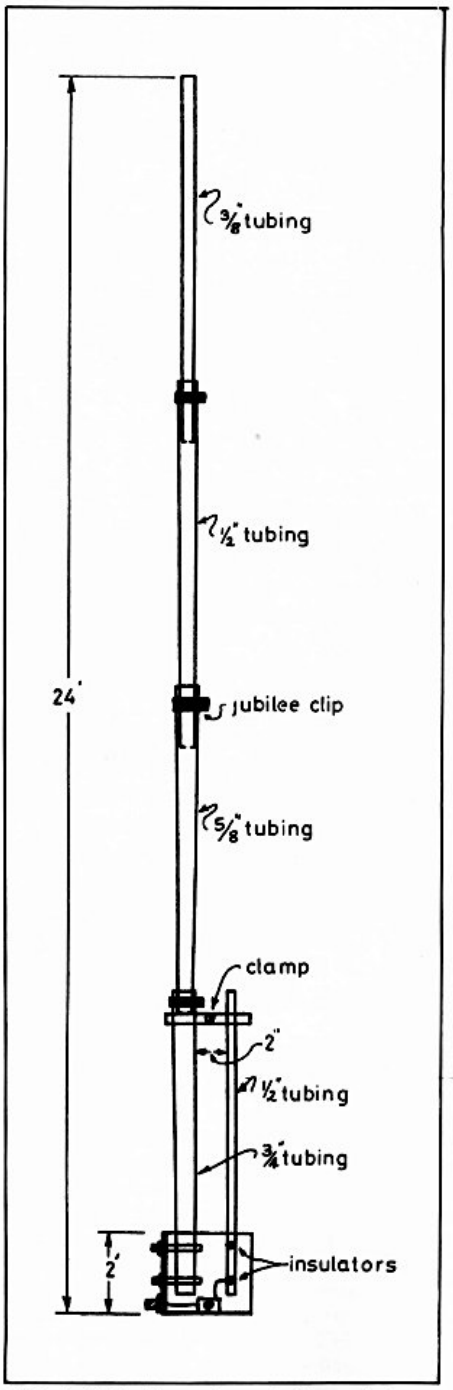


**FIG. 1: ⅝th Wave Ground Plane Antenna**

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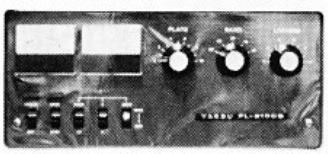

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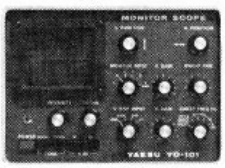

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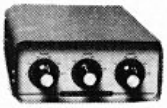

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# MORE ON MODIFYING 11 Mx TRANSCEIVERS

Barry Holloway VK6NBM
201 Ferndale Cres., Ferndale, W.A. 6155

**Many CB transceivers can be modified on to 10 metres by either changing a bank of 6 or a bank of 4 crystals in the frequency synthesiser circuit.**

**In the August 1978 issue of Amateur Radio Sam VK2BVS described what was involved in changing the bank of 6 crystals. I shall describe what is required if one wishes to change the bank of 4 crystals.**

The advantages in changing the bank of 6 crystals is that it saves you the cost of 2 crystals for only the addition of a capacitor and a realignment.

This article should help complete the newcomers' understanding of the basic techniques in modifying frequency synthesised 11 metre sets on to 10 metres.

Currently advertisements are appearing in Electronic Australia and AR indicating the interest in using modified CB gear as an approach for the newcomer to amateur radio.

The modification applies to a wide range of CB units using 14.907, 14.917, 14.927 and 14.947 MHz crystals such as the Kraco KB255, the Hygain V, the Midland 13-892, and a host of others — just check on the circuit diagram.

The circuit numbers given refer to the Kraco KB2355 base station but the principle applies for the others mentioned. The above crystals are designated X206 to X210 inclusive. See details below.

L202: Crystal synthesiser mixer collector (38 MHz output).

L203, L204: 1st, 2nd bandpass tuned circuits — collector of 38 MHz amp.

L2, L3: 1st, 2nd bandpass tuned circuits — collector of xx 27 MHz mixer.

L4: Tx preamp. collector crt.

L5: Tx driver collector crt.

TC201-TC204: 14 MHz crystal trimmers.

L13, L14: Rx 7 MHz mixer collector — bandpass tuned crts.

L15: Input of 16 MHz amp.

L16, L17: Output of 16 MHz amp — bandpass circuit.

L18: Rx RF amp. input crt.

L19: RX RF amp. output crt.

1. Replace crystals X207, X208, X209, X210.
2. Turn L202, L203, L2, L3, L4 and L5 half a turn out.
3. Fit dummy load to antenna socket.
4. Select AM mode and key transmitter. At this stage there should be a slight indication on the RF power meter. If not, trim L202 slowly until there is. If there is still no indication, use a CRO to tune each stage individually.
5. Monitoring on RF power meter:
   Peak L202 on Ch. 12.
   Peak L203 on Ch. 17, Peak L204 on Ch. 6 — bandpass.
   Peak L2 on Ch. 17, Peak L3 on Cr. 6 — bandpass.
   Peak L4 on Ch. 12.
   Peak L5 on Ch. 12.
6. Trim TC201, TC202, TC203 and TC204 for correct channel frequency (trims new crystals).
7. Re-trim L202, L203, L204, L2, L3, L4, L5.
8. Fit 33 pF capacitor to L13 and L14 — these coils must tune down from nearly equal to 7 MHz or 6 MHz which is outside the range of the tuning slug.
9. Wind L15 half a turn out and select LSB.
10. Apply 1 kHz tone to mic (or whistle into it). Key transmitter and trim L13 until output is seen on Ch. 17 (only very silght indication on meter).
11. Peak L13 on Ch. 17.
    Peak L14 on Ch. 6.
    Peak L15 on Ch. 12.
    Peak L16 on Ch. 17.
    Peak L17 on Ch. 12.

Transmitter is now tuned on all modes.

**RECEIVER ADJUSTMENTS**

1. Select Ch. 12 and provide signal to aerial socket. (I sat a sig. gen. several feet from rig without any actual connection).
2. Select AM mode.
3. Trim L18 and L19 for max. indication on S-meter on a centre channel.
4. Check other channels for equal sensitivity.
5. Select LSB.
6. Select Ch. 17 and apply signal to aerial.
7. Re-trim L13 and L16 for best S-meter reading (these coils have been trimmed before but this allows finer adjustment).
8. Select Ch. 6 and apply signal to aerial.
9. Re-trim L14 and L17 for best S-meter reading.
10. Select Ch. 12 and apply signal to aerial.
11. Re-trim L15 for best S-meter reading.

Transceiver is now ready for use on 10m.

Note the Kraco mobile model uses different coil markings for L201, L202, L203, L204 as a different circuit board is used.

Some set commercially available commence with Ch. 1 as 28.310 MHz and Ch. 23 as 28.6 MHz. This means that channel numbering is one off the WIA 10m channel numbering system, which has Ch. 1 as 28.3 MHz and Ch. 23 as 28.590 MHz.

With the wide publicity of the WIA system on 10m, commercial suppliers are conforming to the WIA system. Those who are using crystals 16.252, 16.262, 16.272 and 16.292 which were supplied commercially in large numbers (up to 300 sets) will find this table handy for referring to the WIA channel numbering system.

| WIA Channel Numbering System | Equivalent Numbering on 28.310 to 28.6 MHz sets | Frequency |
|---|---|---|
| 1 | — | 28.3 |
| 2 | 1 | 28.31 |
| 3 | 2 | 28.32 |
| — | 3 | 28.33 |
| 4 | — | 28.34 |
| 5 | 4 | 28.35 |
| 6 | 5 | 28.36 |
| 7 | 6 | 28.37 |
| — | 7 | 28.38 |
| 8 | — | 28.39 |
| 9 | 8 | 28.40 |
| 10 | 9 | 28.41 |
| 11 | 10 | 28.42 |
| — | 11 | 28.43 |
| 12 | — | 28.44 |
| 13 | 12 | 28.45 |
| 14 | 13 | 28.46 |
| 15 | 14 | 28.47 |
| — | 15 | 28.48 |
| 16 | — | 28.49 |
| 17 | 16 | 28.5 |
| 18 | 17 | 28.51 |
| 19 | 18 | 28.52 |
| — | 19 | 28.53 |
| 20 | — | 28.54 |
| 21 | 20 | 28.55 |
| 22 | 21 | 28.56 |
| 22A | 22 | 28.57 |
| — | 22A | 28.58 |
| 23 | — | 28.59 |
| — | 23 | 28.600 |

This table should help to overcome confusion by allowing those using channelized equipment to be able to refer to the standardized WIA 23 channel numbering system.

Crystals X207, X208, X209, X210 should be on 16.242, 16.252, 16.262 and 16.282 MHz to conform to the WIA system. These are available for $4 each from Jan Crystals in the USA (see details in the Aug. 1978 AR article).

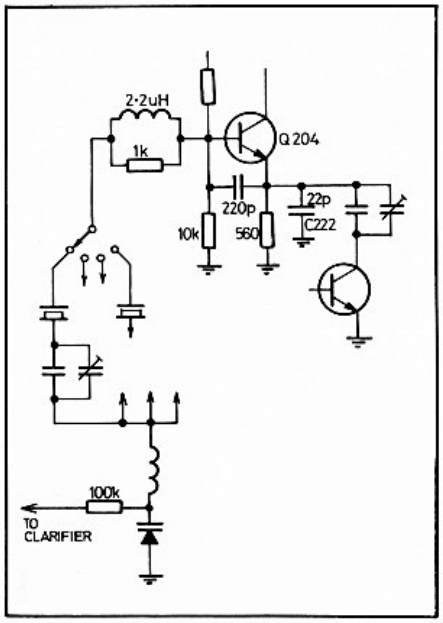



**FIG. 1: Original Circuit**

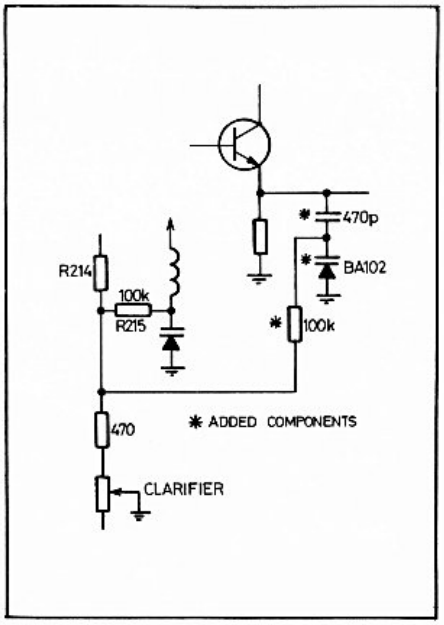



**FIG. 2: Modified Circuit**

**ADDING VERSATILITY TO YOUR MODIFIED SET ON 10 METRES**

Normally CB sets are fixed frequency and provide ±800 Hz clarification on receive. Here is a way of going transceive over ±4 kHz on each of the 23 channels.

**MODIFICATION TO ACHIEVE ± 4 Hz CLARIFICATION**

1. Remove C222 and replace with 470 pF capacitor, leaving earth end disconnected.
2. Connect BA102 varicap diode between free end of 470 pF capacitor and earth (anode to earth).
3. From junction of BA102 and 470 pF capacitor connect 100K resistor to junction of R215 and R214.
4. Disconnect wire from top of clarifier pot and connect to wiper so as to allow variation of transmit frequency. The clarifier will now vary both your transmit and receive simultaneously. All you do is adjust your "fine tune" or "clarifier" control.

Note: The above modifications will cause non-linear control of the frequency. This could possibly be cured by replacing clarifier pot with log. type. ■

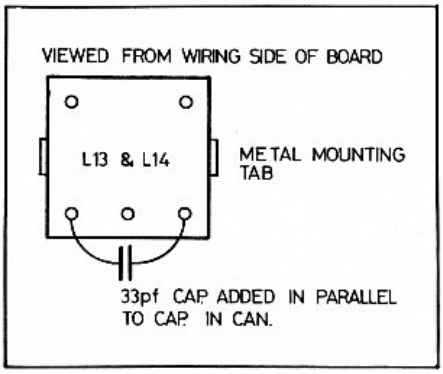



**FIG. 3: IF Coil Details**

# WHYALLA HOBBY AND LEISURE FAIR

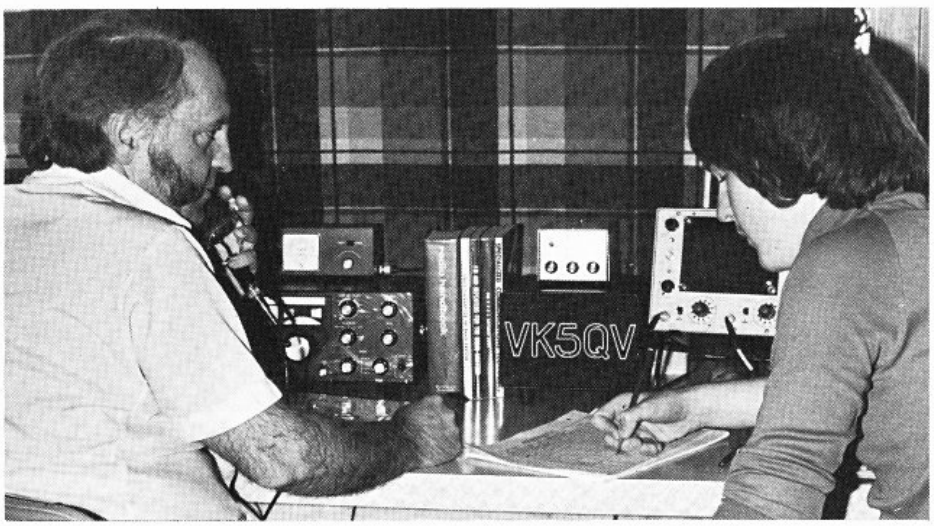
Ivan Huser VK5QV
40 Flinders Avenue, Whyalla Stuart, S.A.

Amateur radio was on display at the 1978 Whyalla Hobby and Leisure Fair held over the week-end of 6th-7th May. Amateur radio station VK5QV/P was set up by Ivan Huser in the assembly hall of Eyre High School in Whyalla with the help of Duncan Hockley VK5ZOH and Steve Baker VK5ZSS.

The equipment consisted of a much modified FT200 into a G2DAF linear amplifier, giving 400 watts PEP output from a pair of QB3/300 tubes. The antenna, a trap-dipole cut for 80 and 40 metres, was strung between two 2-storey classroom blocks.

Equipment on show included a double-beam CRO with one beam used as a RF envelope monitor, and the other connected to a pan-adaptor with a 100 kHz speep.

A great deal of interest was shown in the display, and much time was taken by those manning the stand in explaining to visitors the difference between amateur radio and CB.




This is the third year in succession that amateur radio has been represented at the Hobby Fair.

In the accompanying photograph, Ivan VK5QV and and son, Martin, are shown operating the station. ■

# CONVERTING THE MARK HW3 ANTENNA FOR USE ON SIX AND TWO METRES

Maurie Evered VK3AVO
13 Sage Street, Oakleigh 3166

The Mark HW 3 antenna is designed for 80-10 metre use (reference 1). This article presents a simple method of adaption that enables it to be used on the two popular VHF bands. The method can easily be applied to any similar mobile antenna.

### 1. USE ON SIX METRES

The Mark HW 3 consists of a 49 inch vertical rod to which is attached the various loading coils which resonate it on any of the HF bands. To use it on six metres remove all loading coils and extend the length of the rod to 53 inches, a quarter wave length on 53 MHz. This can be done in either of two ways, one a "try-out" method, the other for permanent installation. The tryout method is shown in Fig. 1a and is virtually self-explanatory, just make sure that the leg of the clip that goes inside the threaded hole is covered with plastic tubing or spaghetti or you may damage the threads. The total length of 53 inches is measured from the point of attachment of the coax cable to the tip of the welding rod extension. Method 2, Fig. 1b, is for permanent installation and uses a brass bolt soldered to the extension rod and screwed into the hole normally occupied by an HF loading coil.

### 2. USE ON TWO METRES

This follows the same method as for six metres but in this case the total length is extended to 58 inches, this is three-quarters of a wavelength on 146 MHz and presents a low impedance at the feed-point that matches well with 50 ohm coax. Repeated tests have shown that this antenna performs as well as a normal quarter wave.

Well there it is. These two simple extensions when added to your set if loading coils provide a mobile antenna that radiates effectively on all bands from 80 to 2 metres. Happy molibeering.

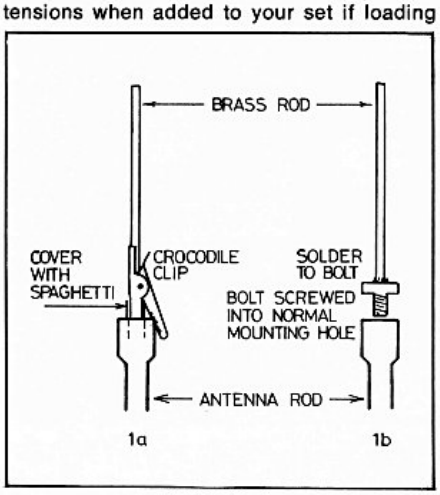
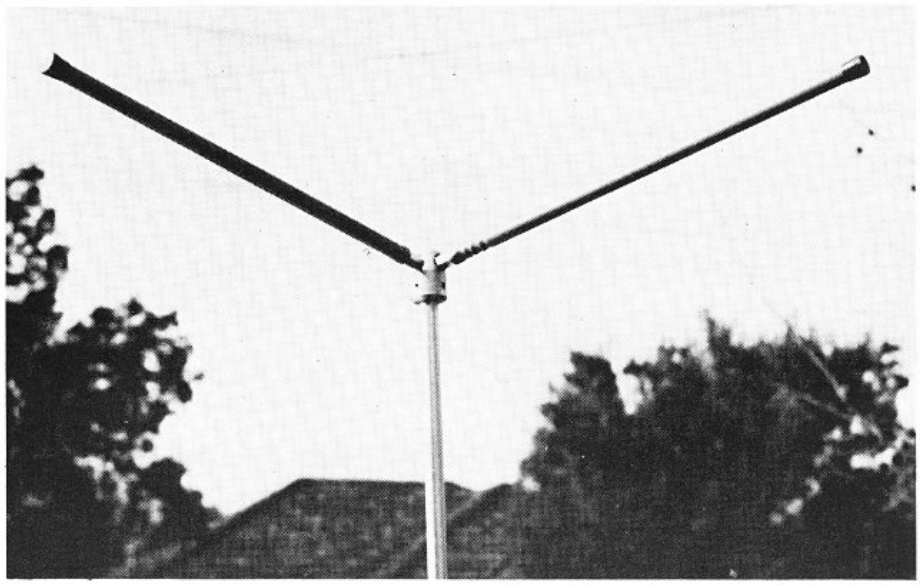
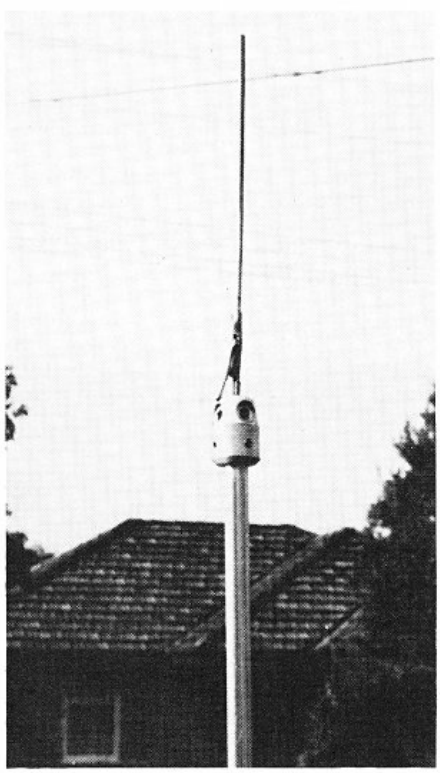



**FIGURE 1**

Reference — Amateur Radio, July 1976, p. 11. Starting Mobile Operation, M. Evered, VK3AVO. ■





**Above: The normal HW3**

**Left: 6 Metre Modification**

# FURTHER NOTES ON THE ATLAS TRANSCEIVER

L. J. Brennan VK4XJ
12 Cornhill Street, Kenmore 4069

**A worthwhile improvement in the signal to noise ratio, especially on 10 metres, is possible by changing the first receiver mixer to four Hot Carrier Diodes in place of the four 1N4148 diodes. Hewlett Packard 5082-2800 diodes were used.**

The first receiver mixer is located on PC Board No. PC100 or if a noise blanker is fitted the Board is PC120 and is located on the right-hand side of the dial drum looking from the front top of the set. It is a plug board fitted with a relay. The four diodes D127-D130 are mounted side by side. Make a note of the polarity of the diodes and fit the Hot Carrier Diodes in the same place. These diodes are also known as Schottky Barrier Diodes and have a more uniform contact potential and current distribution which results in a lower noise characteristic. Although costing near $2.00 each, the improvement is worthwhile and it is suggested that this simple modification should be done firstly because with some sets a preamp may not be required. ■

# THE USE OF THE ICOM IC202 FOR SATELLITE OPERATION

Introduction by R. C. Arnold VK3ZBB

**I have received a number of enquiries from onwers of the IC 202 SSB transceiver to ascertain its use for satllite operation. The following notes attempt to define its use and limitations.**

In the first place it is necessary to obtain the appropriate range crystal to cover the frequency 145.800 to 146.000. This is available from Vicom and is fitted in one of the spare range sockets. Mode A operation requires transmission within this band and the IC 202 using USB together with the appropriate linear amplifier to increase the power output is quite suitable.

Mode B requires reception between 145.800 and 146.000, and has been mentioned in various notes on satellites, the signal is inverted, and invariably LSB capability is required. Where this is so it is necessary to modify the IC 202 to provide LSB, and the following method as described by Sid McLean VK5ME is satisfactory for this purpose.

As the snsitivity of the IC 202 is somewhat lacking at the top end of its range, it may also be considered desirable to add a pre-amplifier, designs of which are readily available in AR articles and various VHF technical books.

## MODIFICATION OF THE IC 202 FOR LSB OPERATION

Sid McLean VK5ME

The approach used entails duplication and switching of the 10.7 MHz carrier generator comprising Q9 and Q10. The carrier shifter stage (Q8) for CW operation is not duplicated. See Fig. 1.

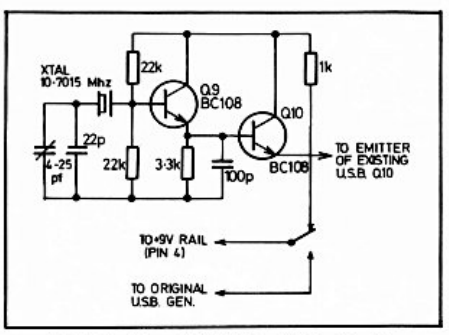



**FIG. 1: New 10.7 MHz LSB Carrier Generator.**

The new carrier generator is built on a piece of Veroboard some 2 cm square and fits on the rear of the VXO gang, alongside the PCB mating connector, and is attached to an unused tapped hole in the gang frame by a 6BA screw, and backed with an insulated spacer strip.

The trimmer capacitor should be mounted at the inboard end of the new board to allow access. Miniature ceramics 1/8 watt resistors and a "K" type (HC 25u) crystal are used.

The crystal should be 10.7015 MHz, series mode. The unit at VK5ME was from a damaged 10.7 MHz crystal filter. These crystals are usually unmarked but can be checked using an oscillator and counter. If no counter is available an empirical method is to connect the new generator and select a crystal that produces a similar receive noise pitch to that of the original USB generator, using the trimmer to achieve this.

### FITTING

Remove front plastic panel by:—

(1) Remove two screws holding top strap bracket.

(2) Peel back front rubber foot and remove two screws underneath.

(3) Pull off all control knobs — note main dial requires Allen key.

(4) Remove threaded retaining ring in well behind VOLUME knob.

The front panel will now remove.

Drill a ¼ in. hole exactly half way between **function switch** and **crystal selector switch** on the same vertical axis.

### NOTE 1

It will be necessary to relocate three earth wires connected to a pressed lug in the area of the hole. Fit a push-button switch (SPDT) in the hole. A Tandy "Archer", Cat. 275-1553 is suitable. Plot and drill a 3/16 in. clearance hole in the plastic front cover. One of the coloured plastic toggle covers for miniature switches will conveniently fit the push switch shaft in preference to the large knob supplied.

To determine which sideband is selected a new LED is installed.

A spare well is moulded in the front panel alongside the "POWER ON" LED. A 7/64 in. drill is used to make a hole in the stick-on black metal trim and allow a second LED to be fitted. This is fed via a 22K resistor from the USB/LSB switch +9 volt circuit so that it lights when LSB is selected.

### NOTE 2

When CW operation is required, the USB must be selected as no carrier shifter stage (Q8) is used on the new board.

### WIRING

On original PCB remove jumper wire connecting +9 volt pin (4) to track feeding R47 (1K). Replace by a wire to new USB/LSB switch. Wire pin 4 (pink wire) of the PCB mating connector to the moving arm to the USB/LSB switch.

Resistor R51 (1.8 meg) requires to be lifted from the existing +9 rail, which now becomes the USB feed, and shifted to the +9 supply which is pin 4 of the connector plug. See Fig. 2.

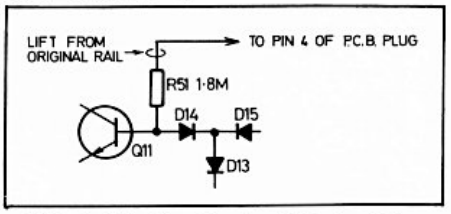



**FIG. 2: Modification to AGC Amplifier.**

An addendum suggested by Derek McNeil VK3ZVG, suggests that rather than drill the front panel for the LSB switch, it may be possible to use one of the small sockets on the front or rear of the unit provided for external speaker, etc. ■

# QSP

**HISTORICAL RADIO BOOK**

Another very interesting book has recently been released entitled "A History of Radio in South Australia 1897-1977", by Mr. John F. Ross. Costing $10 (add postage for 1 kg weight), this well presented, limited edition, book includes a great amount of detail on the early days (and later, too) of amateur radio and the Wireless Institute. In a letter the author writes that, although the book deals specifically with South Australia, it would be of great interest to amateurs in other States. Copies are available from Ernsmiths, 50 King William Street, Adelaide, S.A. 5000.

**SUNDRIES FROM CANADA**

Various items in "Ham Radio", February 1978, are reproduced for general interest. Point of sale control for linear amplifiers has been instituted by Canada's Department of Communications. A recent DOC study of 406-960 MHz is expected to propose 420-430 MHz for mobile services and a new 902-928 MHz amateur band to be shared with fixed services and radio location.

**RAAF RADIO STORY**

A small supply of autographed books "A Saga of Achievement", by Gp. Capt. E. R. Hall (Retd.), is available for purchase from Magpubs. The price is $12.50 plus postage and packing. The weight of the packed book is a fraction over 1 kg for postage calculations.

**ELECTRONIC WATCHES**

According to a snippet in "Collector and Emitter", March 1978, electronic watches, especially LED models, can be permanently damaged by exposure to RF fields.

**YOUNGEST AMATEUR**

According to "Worldradio", March 1978, Neil Rapp WN9VPG, now WB9VPG, was the world's youngest amateur. His age was five years. He is now a technician at six years of age and is studying for his general licence. Another five-year-old has now taken over the laurels from Neil as the world's youngest amateur. ■

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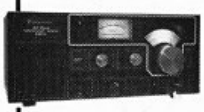

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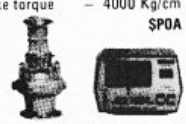

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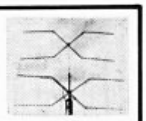

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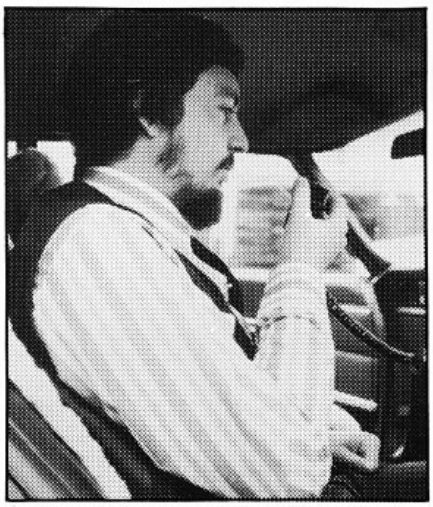

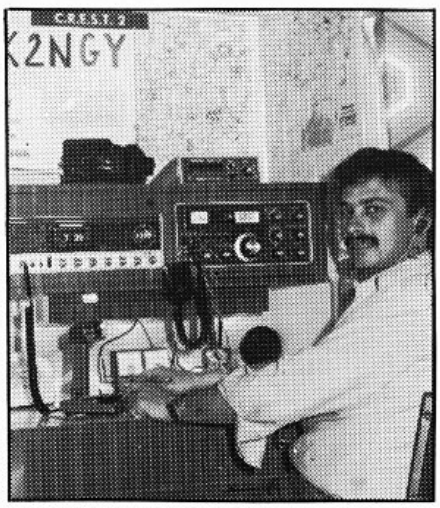



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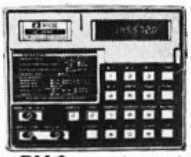

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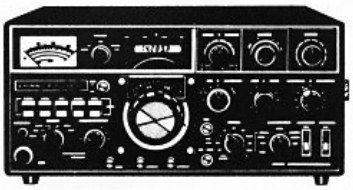

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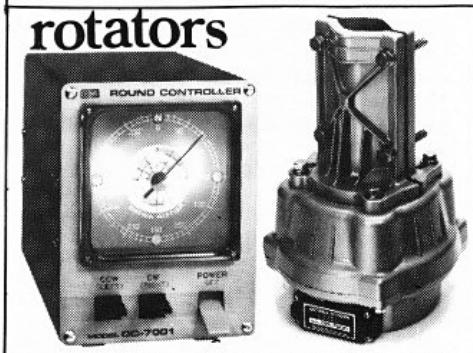


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| VM-2 Desk mic, dynamic, low Z | $29.80 |
| MC-50 Kenwood Desk mic | $58.00 |
| MC-35S Kenwood hand ptt mic | $20.00 |
| Icom hand ptt, low Z | $14.50 |

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| AL48DXN 40/80M dipole | $68.00 |
| AL24DXN 20/40M dipole | $65.00 |

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| V5JR 80-10M, 6.7M high, no guys | $165.00 |
| 14AVQ/WB Hy-Gain, 40-10M | $109.00 |
| 18AVT/WB Hy-Gain, 80-10M | $155.00 |

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|---|---|
| A4VPN 40M dipole kit | $32.00 |

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|---|---|
| Scalar M22T ¼ wave whip | $7.00 |
| Scalar M25T 5/8 wave whip | $17.50 |
| Bases for above | $4.00 |
| Magnetic Bases | $19.00 |
| ARX-2 Ringo base antenna | $49.00 |

| DISCONE ANTENNAS | |
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| 9DX-1 80-480 MHz | $84.00 |
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|---|---|
| TRIO DM800, ideal for hams | $145.00 |

| 70cM BEAMS (JAYBEAM) | |
|---|---|
| 88/70cM, 18.5 dBd gain, 88el, length 3.98M | $102.00 |
| 48/70cM, 15.7 dBd gain, 48el, length 1.83M | $79.00 |
| PBM18/70, 18el, 14.9 dBd gain, length 2.8M | $71.00 |
| D8/70cM, twin 8el, 70cM, 12.3 dBd, 1.1M | $62.00 |

## antennas

| SWR/PWR METERS | |
|---|---|
| VC2 twin meters, 3-150 MHz cal. chart | $34.00 |
| SWR200 Oskerblock 2-200 MHz | $75.00 |
| SW410A 140-500 MHz, direct reading | $129.00 |
| SW210A 1.8-150 MHz, direct reading | $96.00 |
| SWX777 up to 30 MHz, professional | $131.00 |

| LOW PASS FILTERS | |
|---|---|
| FD30M 32 MHz Fc, 1 Kw max, 3 stages | $35.00 |
| FD30LS 32 MHz Fc, 200w max, 3 stages | $20.00 |

| NOISE BRIDGES | |
|---|---|
| Omega TE7-01 up to 100 MHz | $49.00 |
| Palomar up to 100 MHz | $79.00 |

| BALUNS | |
|---|---|
| AS-BL for beams | $31.50 |
| BL50A 50 ohm 4 Kw model for dipoles | $26.00 |
| BL70A 70 ohm 4 Kw model for dipoles | $27.00 |

| VALVES | |
|---|---|
| 6146B for Uniden, Kenwood, Yaesu | $13.00 |
| 6KD6 for early Yaesu linears | $13.00 |
| 6JS6C for FT101 series | $13.50 |
| 572B for Yaesu linears | $59.00 |

| 2M BEAMS | |
|---|---|
| 5Y/2M Jaybeam, 7.8 dBd, length 1.6M, 5el | $39.00 |
| 8Y/2M Jaybeam, 9.5 dBd, length 2.8M, 8el | $47.00 |
| 10Y/2M Jaybeam, 11.4 dBd, length 4.4M, 10el | $79.00 |

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# MARINE MaDnEsS

Greg Noble VK7FT

**You've heard of some crazy ideas.
Well, here is one to add to the list.**

7.30 a.m. Sunday 12th February: Harvey (VK7HK) arrives at Greg's (VK7FT) QTH where Greg had just concluded fuelling his 15 ft. half cabin cruiser. They load up their gear into the boat which includes various strange items — strange to go fishing with at any rate. They depart shortly after and head north-east to a place called Dodges Ferry. On arrival — back the boat down the launching ramp to be greeted by some water conditions which are far from being pleasant for boating (or whatever they are up to).

They launch the boat with much difficulty with very strong winds pushing the waves straight in onto the launching ramp.

The boat reverses into the "slop" and takes in quite a bit of water over the stern. They head for their next destination which is only just around the next point but this takes some time as the 4-5 ft. waves make for slow going. They look at each other ("We must be mad").

They arrive at their destination just offshore from a boatshed at which Greg's father-in-law stands with a 12 ft. aluminium dinghy. The aim at this stage is to get the dinghy out to the boat. They dare not go any closer than 25-30 yards to the shore because of the pounding weather conditions. Greg's father-in-law makes a cast with his fishing rod and on his second attempt Greg's boat becomes "hooked". They attach a rope to the line and it is reeled in to shore where it is tied onto the dinghy. They now head off with dinghy in tow to their next destination — the most sheltered spot available — about ½ mile away in the lee of a small island called Spectacle Isle. They anchor close into the island to get some protection from the weather which by no means has improved.

Now, down to the business at hand.

They pull the dinghy up alongside and with heart in mouth transfer the rented 600W petrol generator into the dinghy, connect the extension lead to it and let it drift away again. They now have a dinghy drifting about 50 ft. away — an extension lead supported by three plastic bottles filled with coolite. Harvey sets up his FT101E on a temporary operating table in the cabin, throws an earthing rod over the side and connects to an antenna coupling unit.

Next comes the fun part of the exercise — pull the gas cylinder from under the bunk and commence to inflate the weather balloon which will support the 66 ft. vertical wire antenna — "MAYBE!!"

Whoops — the acquisition of the balloon must have been too cheap — it has two holes in it and subsequently bursts.

Guess the next step is to employ the 18 ft. (4 aluminium section) vertical — it was taken along as a standby — tie it into place with some fishing line, tune up the rig just in time to give a report to the VK7W1 Sunday morning broadcast which was partly heard on the 2 MTR rig installed in the boat. The next four hours is spent working as many stations as possible for the John Moyle Memorial Field Day Contest. After 34 contacts, 302 points, two flatheads, one whiting, several cups of coffee and one generator refuel and lots of fun, Greg and Harvey with dinghy in tow, head for home, working Mike (VK7FB), crossband 20 metres SSB to 2 metres FM, on the way.

NOTE: The generator in the dinghy 50 ft. away was to reduce any audible or RF interference. Harvey and Greg will probably be about next year — I wonder what they will dream up for then. Thanks to all who worked them. ■


**Greg dismantling the aluminium antenna as Harvey looks on**

# COMMERCIAL KINKS

Ron Fisher VK3OM

This month's notes cover modifications to the FT-75 carried out by Ron Cook VK3AFW. Ron writes:

"The FT-75 is an excellent QRP HF rig and given a good antenna system will perform well both as a mobile and a base station. However, when the QRM builds up on 14 MHz, DX QSOs become difficult to initiate. This can be frustrating. The addition of a linear such as the SB-200 or FL-2100, etc., provides 300 watts or so of output. A signal boost of 10 dB makes a big difference in marginal or difficult conditions. The maker's handbook states that a linear amplifier is an optional accessory, however it cannot be used because the appropriate linear amplifier control wiring does not exist. To be more precise, the FT-75 has an uncommitted change-over contact set which grounds pin 9 of the rear power connector J1 on receive, and pin 10 on transmit. The DC-75 DC power supply has pin 10 of P101 connected to pin 3 of J101, the accessory socket. So far so good, the catch is that there is no interconnection between the corresponding pin 10 of P101 and J101, or at least not in my particular cable.

Although a linear is more likely to be used when the FT-75 is operated as a home station, the FP-75 AC power supply not only has no pin 10 interconnection in its cable, it has no accessory socket.

There are two alternatives. Either an additional wire must be run along the outside of the power cables and wired to both pin 10s, then taped to the cable and an accessory socket added to the FT-75 or the pin 10 wire in the transceiver must be brought out to another socket on the FT-75 back panel. The 7 pin socket J7 seems of no practical use, so re-wiring this is the neatest solution if a suitable socket is available. Otherwise it is necessary to mount a socket such as an RCA (phone) type for which plugs are readily available. Space for such a socket is very hard to find. I took the easy way out and removed J7 and its wiring and replaced it with an RCA socket mounted on a small aluminium disc bolted into J7s hole. A wire was run from pin 10 of J1 to the centre pin of the new socket. A screened wire was used to connect to the linear. Many happy QSOs and S9 reports have been had since.

Of course the FT-75 is of limited use as a portable or base station unless a VFO is used. The matching Yaesu VFO tends to drift a bit and the dial calibrations are nominal rather than actual. I have built a VFO based on the Drew Diamond circuit published in the October 1973 issue of Amateur Radio. I used a TIS88 FET in the coil covers 21 MHz and is shunted with oscillator. Band changing is effected by switching three coils and two shunt capacitors. One coil covers 14 MHz and is shunted with capacitance for 3.5 MHz. Another coil covers 7 MHz, and the last capacitance to work at half the injection frequency for 28 MHz. There is some drift but it is less than the Yaesu unit. Temperature compensation has not been needed to date.

I found it convenient to sit the FT-75 on top of the AC supply. Unfortunately this gives rise to an annoying level of hum. Placing a sheet of perforated steel between the rig and the supply cured this. Four stick-on plastic feet were used to space the sheet above the power supply case to aid ventilation."

Next month some more simple modifications for the TS-520. ■

# THE LADY BEHIND THE MICROPHONE

**FIRST LICENSED XYL FOR SUMMERLAND AMATEUR RADIO CLUB**

(See front cover)

During a goodwill visit by the newly elected President of the NSW Division of the WIA, David Thompson VK2BDT, to the Summerland Amateur Radio Club at Lismore in northern New South Wales, the opportunity was taken to have the President of the Division preside at a ceremony held by the Club to congratulate the Club's first XYL member to gain an amateur licence.

Jenny Wicks, newly licensed as VK2NTJ, received the best wishes of all present at a well attended meeting of the Club which had been called as a special meeting to welcome the Division President to the district. Jenny had been an active Club member and regular attender at the Novice clasess conducted by the Club, and her determined efforts had finally paid off. Not being one to allow the grass to grow under her feet, she has already embarked on vigorous studies for the AOCP, and if past performance is any indication, it won't be long before she has the full call.

This special meeting of the Summerland Amateur Radio Club was attended by 36 members from a wide area of the North Coast district served by the Club. Club President, Fred Herron VK2BHE, extended a warm welcome to the Division President on his first visit to the Club since his election as Division President. The welcome was followed by an entertaining evening which included a video tape showing of a recent TV programme on Amateur Radio, and a second video tape programme on the subject "Transistors versus Temperature", both arranged by versatile Club Secretary Harold (Wheeler-Dealer) Wright VK2AWH. At the conclusion of the programme, a sumptuous supper was presented by the Ladies' Auxiliary.

All in all, the evening to remember at the Summerland Amateur Radio Club.

(Information supplied by Fred Herron VK2BHE, President, Summerland Amateur Radio Club.) ■

# FROM THE OVERSEAS ADS.

*An occasional AR feature*

From ETO: The new Alpha 76A HF linear which has a 1 kW CW continuous power rating or a 2 kW PEP two tone SSB rating. They also are bringing out a 6 metre model.

From Alda: Their Alda 103, a 80/40/20 solid state 250W input transceiver under $US500.

KLM have a shortened 40 metre rotatable dipole.

ASTRO have brought out the ASTRO 200A with tuning buttons on the mic. to allow instant QSY. Great for mobile.

Cornell Dubilier introduce an updated HAM II, known as the Tail Twister. Much bigger and much more rugged.

Kenwood have the SM220 monitor scope, the TS700SP with digital dial, and a neat HF antenna tuner Type AT200 to bring that piece of wire within range of your pi network. Also Kenwood have a very nice linear, the TL922.

Icom have a natty new 2 FM rig, the IC270 built in two parts. A remote control head and a boot mounted transceiver. Looks an interesting new rig. Icom also have the IC202A with LSB and USB and the IC302, a 432 MHz version of the IC202.

Drake have a very fine HF transceiver in the new solid state TR7. Drake also have a 3-band VHF transceiver for 144, 220, and 432 in their UV3. ■

# TECHNICAL CORRESPONDENCE

The Editor,

Dear Sir,

There are a couple of errata in the circuit of the "Sub Carrier Audio", page 26, AR July 1978.

(1) The correct type No. of Q1 is 2N4249 (alternately 2N4250).

(2) A .01 uF ceramic disc should bypass the cold end of the collector coil of Q2.

RFC is a single wire through an F29 slug.

If audio response is too bassy, change .01 coupling capacitors of the LM3900 stages to .005 uF.

Yours faithfully,

I. F. Berwick VK3ALZ. ■

# THE WORLD ADMINISTRATIVE RADIO CONFERENCE — 1979

Michael J. Owen VK3KI.

## 1. INTRODUCTION

**In the last two years a great volume of material has been published in amateur journals on the World Administrative Radio Conference in 1979. This paper is an attempt to provide a basis for understanding the problems that are facing all frequency users in 1979. It describes in broad terms the organisation of the International Telecommunications Union and refers to the political background. It then describes how the IARU and the National Amateur Radio Society in each country are undertaking their preparation for the 1979 conference.**

## 2. THE ITU

The ITU is the oldest of the specialised agencies of the United Nations — it is considerably older than the United Nations itself. Its origin lies in the Paris Conference of 1865 which led to the signing of the International Telegraph Convention, the foundation of the International Telegraph Union. The origin of the ITU lay in the need to co-ordinate telegraph communications.

With the development of radio, international co-ordination of frequencies also became essential. Starting with the Washington Radio Conference of 1927, that task has been undertaken by a series of major conferences. At Madrid in 1932, the International Telegraph Union changed its name to The International Telecommunications Union to encompass radio as well as telegraph in its title. Following the Second World War, the ITU met in two meetings in Atlantic City, one a Plenipotentiary Conference, the other an Administrative Conference. The Administrative Conference reviewed the whole of the frequency table. By agreement with the United Nations, the ITU became a specialised agency and its headquarters were shifted from Berne to Geneva in 1948. Then, in 1959, there was a further general review of the whole radio frequency table in Geneva. It will be in 1979 that the whole frequency table will be again reviewed.

Before looking in more detail at the organisation of the ITU, it is helpful to remember the nature of the ITU as an International Organisation. Its members are sovereign states and those states lose no part of their sovereignty by being members of an international organisation. They have ultimately the choice as to whether they are bound by its decisions to participate in a meeting or they may not sign the final document, or they may sign the final document with reservations, or they may refuse to ratify a treaty, or they may ratify with reservations that completely change the meanings of the decision for that particular member state.

The purposes of the International Telecommunications Union are set out in the Convention, which is the basic treaty that creates and governs the Union. The current Convention was adopted in 1973 at Malaga-Torremolinos (in Spain).

Amongst the defined purposes of the ITU is the following:

> ". . . the Unions shall in particlar: effect allocation of the radio frequency spectrum and registration of radio frequency assignments in order to avoid harmful interference between radio stations of different countries."

The Union comprises a number of organs.

### A. THE PLENIPOTENTIARY CONFERENCE

This is the supreme organ of the Union and revises the Convention, the basic document that creates the ITU.

It meets usually at five yearly intervals and comprises delegations from all the member countries.

### B. ADMINISTRATIVE CONFERENCES

These may be world or regional. They may undertake partial or complete revision of the administration regulations of the ITU. These regulations are:—

(a) the Telegraph Regulations;
(b) the Telephone Regulations;
(c) the Radio Regulations and Additional Radio Regulations.

### C. THE ADMINISTRATIVE COUNCIL

This comprises 36 members elected by the Plenipotentiary Conference. It is responsible for the co-ordination of the work of the Union, particularly the administrative and financial aspects.

### D. THE PERMANENT ORGANS

(a) The general Secretariat.
Directed by the Secretary General, assisted by a Deputy Secretary General, it is responsible for the whole of the administrative and financial side of the Union's work.

(b) The International Frequency Registration Board. The Board is composed of five independent members appointed by the Plenipotentiary Conference, assisted by a specialised Secretariat — the IFRB. It is responsible for, in effect, keeping a master frequency register and to advise members in particular areas.

(c) The International Radio Consultative Committee (CCIR).

(d) The International Telegraph and Telephone Consultative Committee (CCITT).

The two Consultative Committees study and issue recommendations on technical and operating questions in their particular areas. The Deputy Secretary General, R. E. Butler, recently pointed out that these Committees provide an enormous pool of knowledge and expertise of government telecommunication operating entities, industry and scientific interests. He said —

". . . members of the Union base their actions not only on the collective wisdom of governments and their agencies and institutions, but also on the specialist expertise of the technical and scientific communities and operating entities."

The 1979 World Administrative Radio Conference will be preceded by a special meeting of technical experts in the framework of the CCIR in October 1978 —

". . . with a view to recommending the various technical parameters so that the 1979 Conference can adopt its decisions based on the latest *agreed* technical and related operational advice."

That may all sound as though the ITU is remote from global politica and operates in a satisfying technical vacuum. That is not always the case. The final protocol of the Malaga-Torremolinos Convention is interesting reading. For example, the text of the Final Protocol for the People's Republic of China commences:—

"The delegation of the People's Republic of China wishes to state as follows:—

1. that the traitorous Lon Nol clique is a handful of Cambodian National sc and is illegal from the very beginning . . ."

In the same Final Protocol, the People's Republic made reservations on the assignment and utilisation of radio frequencies.

The Conference in 1979 is a World Administrative Radio Conference. The agenda has been fixed by the Administrative Council. It will in 10 weeks attempt to cover that agenda which will indeed be a formidable task.

## 3. THE POLITICAL BACKGROUND

The first general World Administrative Radio Conference after the Second World War was held in Atlantic City in 1947. The world has changed greatly since then, particularly for the United States of America and the western industrialised world. Those countries have traditionally supported the amateur service so that change may be significant in any evaluation of the position of the amateur service today.

In a paper published in the ITU Telecommunications Journal, George Codding,

Jnr., of the Political Science Department of the University of Colorado wrote —

> "American delegates to international conferences must be made aware of the fact that they and the rest of the industrial west are now in a minority."

Daniel P. Moyihan, the former United States Ambassador for the United Nations, wrote —

> "We are witnessing the emergence of a world order dominated arithmetically by countries of the Third World."

The same thoughts were expressed by Armin Meyer, the former US Ambassador to Iran in Japan in an address to the North West Convention on July 30th, 1977. He referred to the short-lived Pax-Americana following the Second World War and the reaction now to the actions of the United States at that time. "A new majority, comprised primarily of the emergent nations, encouraged by the communist countries, is ramming through resolutions. Issues are decided not necessarily on their merits, but through a coalition of special interests."

Codding points out that the new nations have adopted the battle cry of anti-colonialism and will usually vote unanimously on the side of any issue that can be identified, sometimes accurately, sometimes not, as anti-colonialist. The exclusion of Portugal (subsequently rescinded) and South Africa from ITU Conferences is an example of this.

Meyer warns —

> "Under the circumstances, it is conceivable that many small and poor nations at WARC may construe American support for amateur radio as just another symbol of the determination of a developed country to dominate them through some sort of economic hegemony."

At Atlantic City there were just 50 members of the United Nations. At that ITU Conference many countries exercised more than one vote, having additional votes for their overseas territories. By 1973, the Malaga-Torremolinos Conference deleted the last of these additional votes, a decision that affected Spain, Portgual, France, the United States and the United Kingdom. In 1979, at least 153 countries will be entitled to vote. There are many member countries of the ITU, perhaps even a majority, with different aspirations based on different needs from the western industrialised countries. There are now new politics of alliance that can influence the ITU.

The conflict between political interest and interests of the amateur service is highlighted by the conflict of that service with the shortwave broadcasting service. There can be no more political use of spectrum than shortwave broadcasting, which only exists for the value of the propaganda to the country responsible transmitting it. The question is which is the more useful use of spectrum? The broadcasters lay claim to huge listening audiences. In some cases, their claims are based on concepts that some may find curious, for example, a single request for a QSL card from a 12-year-old in Japan may be taken as representing a listening audience of 250 in that country. There are other and more elaborate justifications of the broadcasting service. In the end, they all suffer from the difficulty inherent in measuring the size of a distant audience listening to a variety of frequencies. Will this conflict be resolved by the frequency Manager as the technical expert, or by a political value judgment?

## 4. THE IARU AND ITS MEMBER SOCIETIES

The IARU was formed in 1925. It consists of one society for each country that has been accepted as representing the amateurs of that country. By its Constitution, there are no elected officers. One society is nominated as the Headquarters Society and the officers of the Headquarters Society take similar offices in IARU. No fees are paid and there is no structure for meetings. What consultation that does take place, takes place by means of correspondence and through the IARU Calendar.

Thus, the whole financial burden and the whole responsibility to exercise a leadership role rests with the Headquarters Society. The Headquarters Society is the ARRL, which has appointed a Canadian, one of its Vice-Presidents, Noel Eaton, as President of the IARU. The ARRL, as IARU headquarters, has devoted a massive expenditure and a massive effort to properly carry out its stewardship of the IARU in this period leading to WARC 1979.

As the ITU divides the world into 3 regions, namely, Region 1 — Europe, Africa; Region 2 — the Americas, and Region 3 — what is left, so regional organisations have been formed within the framework of the IARU of member societies in each region. These regional organisations are financed by subscription paid by their members' society and they do elect officers.

In fact, the IARU global policy for the 1979 WARC was formulated through a series of Regional conferences in 1975 and 1976. Following these regional meetings the President of the IARU called a meeting of representatives of all three regions concurrently with the Region 2 Conference in Miami in April 1976. Representatives of a number of societies in each region also attended this meeting. Noel Eaton perceived the need for continuing advice and formed a small informal committee comprised of individuals from each region and the Headquarters Society. That Committee met in Geneva in September 1976, at Maidenhead in June 1977, and again in Geneva in February 1978. The function of this Committee has been to advise the President of IARU and through the IARU and through the regional organisations, amateur societies in each country.

It must be remembered that there are many societies without the resources of organisations such as RSGB, ARRL or even the WIA or NZART. It is basic to the IARU strategy that it is only the national society that can deal with the administration in its own country. Even if a society has less than 30 members, it has a vital role to play in the advancement of the amateur position to the World Administrative Radio Conference. It is particularly the smaller societies that the IARU seeks to help. Thus the IARU performs a dual function. One is the coordination of policy and effort and the other is the provision of assistance and guidance wherever it is sought.

An example is the preparation by the President's WARC Advisory Group of a model position paper for societies to present to their administrators either as a basis for their own submissions or with appropriate adaptations.

Let me illustrate how one particular problem has been grappled with by the IARU. The Administrative Council last June adopted a revised agenda for the WARC. One of the revisions was to include a review of Article 41 in the agenda for the 1979 WARC. Meeting at Maidenhead, England, at the end of June, the WARC Advisory Committee considered the implications of the Administrative Council's decision. This Article had been considered at the Inter-Regional meeting held concurrently with the Region 2 Conference in April 1976 in Miami, Florida. A number of deficiencies were noted, for example, the mechanism for "banned countries".

Against this, it is felt that there are other considerations — the most important of which was the undesirability of a general debate on the nature and usefulness of the amateur service. It is Article 41 that requires a morse code as well as technical qualifications for licensees operating below 144 MHz. It was feared that some administrations could well find the removal of those provisions a convenient way of finding more spectrum for CB operation.

Any review of Article 41 could be unpredictable as to its result. Accordingly at the Maidenhead meeting a position paper suggesting retention of the Article in its present form was prepared and subsequently circulated to member societies. At the last meeting, after consultation with his committee, the President of IARU decided to circulate a further paper stressing the reasons for the advice given by IARU to member societies.

If no member country proposes any amendments to Article 41, there will be no discussion on the topic and therefore the matter will lapse. This is an example of the sort of assistance that IARU is offering to member societies, and an example of how the Amateur Service seeks a co-

ordinated approach to Administrations. It is now up to each society to decide whether it will or it will not follow the recommendation of the IARU.

So far as the preparation, at this stage, for WARC is concerned, there is at present a tremendous variation from country to country. In the USA, the FCC and the other arms of Government involved in the formulation of the United States' case, have been engaged for a very long time in the preparation of a position for that country. Because of the American publications and because of the administrative procedures that govern the FCC which requires its deliberations to be on public record, we tend to see more of that country's preparation than many other countries. Yet we must be careful to distinguish the criteria that is used before the FCC in order to meet the terms of the United States legislation (which is the public interest, necessity and convenience) and the criteria that is used in other countries which normally has no formal legislative basis.

In Australia, a Planning Group has been formed of the Chairmen of the Committees representing each service, including the Amateur Service. From the reports of the Committees, the areas of conflict will be identified and then compromised and in the end a position will be adopted. But these countries are advanced in their preparation.

In other countries the World Administrative Radio Conference in 1979 is not so important and their preparation is only just beginning.

It is obvious that in each country where there is an IARU society, that society has a heavy responsibility to advance the amateur cause to its own administration.

## 5. THE ASPIRATIONS OF THE AMATEUR SERVICE

It is possible to identify the most important aspirations of the Amateur Service as follows:

At 10, 18 and 24 MHz new allocations to the Amateur Service, of which the 10 MHz proposal is the most important.

More frequencies on which amateur satellites can operate on a non-interference basis.

In short, an increase and not a reduction of frequency spectrum allocated to the Amateur Service is a fundamental aspiration of the service for the WARC in 1979.

The heart of the amateur case is based on the usefulness of the service combined with the number of stations in the service. The number of licences in the USA rose at an annual rate of 20 per cent. In Australia the rate of increase was 13 per cent. By 1978, there will be 1,000,00 amateurs in the world. By 1982, when the 1979 WARC decisions take effect, there will be 2,000,000. It is reasonable to predict that there will be 6,000,000 by the end of the century.

## 6. A GENERAL OVER-VIEW

In each country there are conflicts between users for spectrum. This paper does not seek to explore the specific conflicts in any country. It is not an attempt to predict the outcome of the WARC. It must be remembered that each national amateur society exists in a different environment from all the other societies ranging from countries where there is a basic acceptance of the worth of the amateur service to countries that see other and more useful purposes for the allocation of frequencies.

In countries where the amateur service may not have the support of the Administration, the national societies may be faced with the need to persuade their Government to one or more of the following propositions:

1. A short term desire to isolate people from communication with the rest of the world should not be a basis for depriving people of that opportunity for all time.
2. That Amateur Radio does not represent a potential threat to the security of a country for amateurs are known to, and licensed by, the Administration and that the improper use of amateur bands is more likely to be detected than the improper use of many other parts of the spectrum are closely monitored in many places and improper use is identified.
3. A value judgement that Amateur Radio cannot be useful to a country if that judgment is based on casual observation of the use of the spectrum or even on the basis of the behaviour of visiting amateurs rather than a proper evaluation of the needs and requirements of that country and how those needs can be met by the proper development of an Amateur Service.

Very often a society may be faced with the need to overcome ignorance of the amateur service on the part of particular administrators.

The most difficult task that is faced by the IARU is to articulate what has been called the justification of Amateur Radio.

In a sense, this approach is influenced by the concept of the public interest, necessity and convenience to test that the Federal Communication Commission is bound to apply. But, in the end, the question becomes the same given conflicting clause — which way is the interest of the community balanced?

There are philosophic arguments expressed, for example, by Tom Clarkson. He has suggested —

> "It is the *most basic* and the most *worthy of respect* of all radio services. This is because it is a manifestation of human process *very close* to life itself."

These views are worthy of respect, but they are not convincing in all countries. The different needs and different aspirations of many third world countries must be constantly borne in mind. Faced with poverty, perhaps famine, illiteracy, perhaps the fear of invasion or insurgency, these arguments may seem remote. Politicians and bureaucrats are generally more pragmatic than philosophic.

Amater radio exists by international treaty. We cannot ignore the aspirations of what may be a majority of the members in 1979. How does the Amateur Service respond? It seeks to persuade the administrations of the world that Amateur radio is not a plaything of a capitalistic western society; the toy of the wealthy supported by commercial interests. It is not political, but transcends national boundaries and provides a real benefit for either today or potentially because of its educational and training value, a value which is particularly significant for developing countries.

That position is, in effect, being advanced three ways. First, by the representation on a co-ordinated basis by national societies (or by other means where no national society exists) to the administration of each country. Second, at the Conference, through amateurs who are members of delegations specifically representing the Amateur Service. They will, as members of delegations, be entitled to speak — a very considerable advantage. They will, as delegates representing a country, owe their first loyalty to their country and will be bound by their country's position. Third, through the IARU. It is not a member state, but may be admitted as an observer. Its delegates may speak by invitation. At the Space Conference this happened twice. The primary role of the IARU is, therefore, to inform delegates and to seek to influence them.

The position has been simply summarised by R. L. Baldwin:

> "Say, how did that all important word 'amateur' get into the (frequency) tables? Because the majority countries represented (in 1959) *voted* for it. If amateur radio is to survive in this decade, the same thing must happen in 1979."

## REFERENCES


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2. Codding, G., ITU "Telecommunications Journal", May 1977 (Volume 44, No. V).
3. "Will Amateur Radio exist in 1980?", QST November 1976.
4. "WARC in a Magnetic Field", QST October 1977, p. 9.
5. World Problems in Radio Communication, T. R. Clarkson, 26/4/1977.
6. R. E. Butler, an address to Intelcom 77, 11th October, 1977, Atlanta, Georgia.
7. "What is in ITU?", ITU 1974.
8. Communications Act 1934 (USA).
9. Response to Fifth Notice of Enquiry (ARRL). ■

# NOVICE NOTES

**Novice Amateur Team Wendy VK3NKU and Rodney Johnstone VK3NEJ.**

**Solid State HF Mobile Transceiver — see text.**

R. Champness VK3UG
Photography by Don Laity

**ARE THEY THE FIRST?**

Pictured are Wendy (VK3NKU) and Rodney Johnstone (VK3NEJ), a husband and wife Novice Amateur team, in their shack in Benalla. Are they the first husband and wife Novice team? They must be one of the first and certainly the first in Benalla.

Rodney was looking for some pastime to get him away from his photographic work and decided radio might suit his interests. He was offered a CB set by one of the locals in January 1977, but heard he would probably need a licence for it. He visited the local District Radio Inspector of the P. and T. Department, and was told that CB was not legal and that he could not operate any radio equipment of this general type without a licence. The Inspector pointed out that if he really wanted a worthwhile hobby in communications radio, that a Novice Amateur licence would be the way to go. It was suggested that he might care to approach Les Osborne VK3AAO, who is an active amateur, with the idea of seeing what amateur radio was about. Rodney did just that. Les "sold" the idea of amateur radio to him and also loaned him a receiver so that he could get his feet wet by listening around the bands. Rodney got stuck into the study and sat for the Novice licence examination in May 1977 and passed all subjects. He obtained his ticket in July 1977.

Wendy, his wife, decided to have a go, too. If the OM could get it, so could she. She sat the first time in October 1977 and completed the examinations in February 1978 and obtained her ticket in June this year.

Rodney does most of the operating and regularly works DX and local stations on 80, 15 and 10 metres. The FT200 is used both at home and mobile. The CB rigs are used for talking to some of their CB friends about Benalla. The Realistic DX-160B, not shown in the photograph, is used for general short wave listening. The aerials in use at their station are up and down like yo-yos as experiments are conducted. The aerials at the time of writing this are a half-wave dipole on 80, one and a half wave dipole on 15, and a quarter wave ground plane on 10 metres.

Rodney is Vice-President of the Benalla District Radio and Electronics Club. He competently and successfully organised and ran a meeting in February for CBers and other radio communications users which was addressed by Senator John Button and Mr. Jim Wilkinson.

Benalla's amateur radio population has doubled in the last two years.

Rodney's influence is helping to gain amateur operators from the local CB fraternity. ■

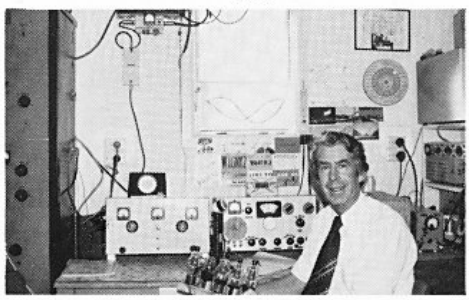
**HOME BREWING — VERY MUCH ALIVE**

There has been some comment lately that we amateurs operate only "black boxes" or are "appliance operators", and the like.

Well, just to put the scene in the right perspective here is some pictorial proof of the continuing experimental and home brewing side of our hobby.

Merv Collins VK3AFO sent us photographs of some of his work.

Most of the equipment shown, including the SSB H/F linear, HF SSB/CW transceiver, VHF wideband recline, the 12V regulated power supply and the 5 in. CRO were constructed mainly from components salvaged from obsolete black and white TV receivers.



**VK3AFO holding a 807 sub chassis — a part of the experimental linear amp.**

The transceiver uses a 5 MHz crystal filter.

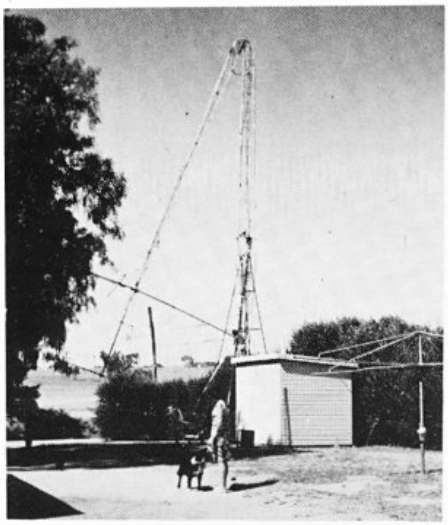
The H/F mobile SSB solid state transceiver, which also uses a 5 MHz crystal filter, was constructed along the lines of the "Amateur Building Blocks" series which appeared in AR during 1975.

Home brewing always will be one of the main attractions to amateur radio. ■

**OUCH! WAS THAT ANTENNA HIGH ENOUGH?**

It could happen to you, but we certainly hope not. Peter Page VK2APP was the unlucky victim this time when a sudden gust of wind bent the antenna mast a few months ago.

It just goes to prove the old QST saying — "If the antenna didn't come down last winter, then it wasn't big enough."



The tower has been re-installed complete with a 204BA and sundry others.

Peter (who is a blind operator) lives at Montagle, near Young, Central West NSW.

Photo courtesy David Thompson VK2BDT. ■

# AMATEUR SATELLITES

### AMSAT MEMBERSHIP

Bob Arnold VK3ZBB

I am pleased to report that the Australian membership of AMSAT has almost doubled in the last twelve months. If you would like details send me a SASE or write direct to AMSAT, P.O. Box 27, Washington, DC 20044, USA. Annual subscription is $US10 or Life Membership $US100 — join now while the rate of exchange is really in your favour.

New Life Members from Australia include VK5ZZ, VK5EF, VK4HD, VK2ZAZ, VK2ZQC, VK2ZIP.

Grateful thanks to Dick Smith (prop. Dick Smith Electronics) for his generous donation to the Phase 3 project. Dick is very interested in OSCAR work and you will be hearing more from him in the near future.

### WANTED — DX

Greg Roberts ZS1BI reports that there is considerable OSCAR activity in South Africa with 63 stations in AO7 Mode A and 27 on Mode B.

Greg writes, "Starting towards the east, the first major land mass is Australia. Calculations show that a ZS-VK contact is possible and several east coast ZS stations have made a special effort to work VK with no luck so far. It would appear that VK operators do not bother to work the low western passes."

What about you VK6 boys making a new record to follow the great achievements on 432, 1296 and 2304? Greg's address is P.O. Box 9, Observatory, 7935, South Africa. There is also a HF net on Saturday at 1100 GMT on 14280 kHz with ZS1BI net control station.

### OSCAR 7 — IT'S EASY

I was interested to read the article by Gil Spencer VK2JK in July AR and propose to correct a few hairy statements:—

- There is no plot to confine OSCAR 7 (or 8) to the chosen few, witness my several offers of basic OSCAR literature prepared by ARRL. The response for "OSCAR for Beginners" has been overwhelming and I have another batch on the way from USA. If you would like a copy send me a 20c stamp QTHR.

### OSCAR 7 — IT'S EASY

- Working OSCAR can be achieved with simple gear. Note the comments of Graham VK5EU on mobile operation published in this column in April 1977.
- High power is not necessary, in fact, it is discouraged. Contacts have been made with 300 mW.
- I haven't heard you on 7A yet, Gil, but don't forget the fun you can have on 7B and also 8A and 8J. There are lots of stations waiting to work you but you need a bit of science for 7B and rather more for 8J.

My grateful thanks to Charlie VK3ACR for keeping this column going while I was away. Despite his great interest in 1296, Charlie still remains faithful to the birds; it is amazing how many interests one can have in retirement!

### OSCARLOCATOR

Following my review of "Getting to Know OSCAR from the Ground Up" in the March edition of "Amateur Radio", I received a letter from Stephen Place of ARRL. Stephen points out that the OSCARLOCATOR mentioned in the book can be used in the southern hemisphere in accordance with the following instructions:—

1. Ignore the map under the grid.
2. Find your location in terms of latitude and longitude.
3. Place the QTH Rangefinder over your QTH as described in the instructions.
4. Flip the orbit finder over (upside down) as the tracking curve in the Southern Hemisphere is reversed from that in the Northern Hemisphere.
5. Attach as described in the instructions.
6. To get the descending node EQX, add exactly ½ the period and ½ the progression to the time and longitude of the ascending node EQX (from the table).
7. One half the period is 57.473 minutes for OSCAR 7 and 51.615 minutes for OSCAR 8. One half the progression is 14.369° for OSCAR 7 and 12.904° for OSCAR 8.

I have tried this out and it certainly works, although the map under the locator is, of course, not correct and it is necessary to transpose the latitude and longitude readings from the Northern to the Southern Hemisphere. "Getting to Know OSCAR from the Ground Up" is a useful publication for those interested in satellite operations and it is now available from Dick Smith Electronics shops as well as other technical book shops. ■

**REFERENCE ORBITS — OCTOBER 1978**

| OSCAR 7 | | | | OSCAR 8 | | | |
|---|---|---|---|---|---|---|---|
| Date | Orbit | Time Long. EQX Z | ° W | Date | Orbit | Time Long. EQX Z | ° W |
| 1 | 17731B | 0031 | 67 | 1 | 2920J | 0104 | 57 |
| 2 | 17744B | 0125 | 81 | 2 | 2934A | 0109 | 58 |
| 3 | 17756A | 0025 | 66 | 3 | 2948A | 0115 | 59 |
| 4 | 17769B | 0119 | 79 | 4 | 2962X | 0120 | 61 |
| 5 | 17781B | 0018 | 64 | 5 | 2976A | 0125 | 62 |
| 6 | 17794A | 0113 | 78 | 6 | 2990A | 0130 | 63 |
| 7 | 17806B | 0012 | 63 | 7 | 3004J | 0135 | 65 |
| 8 | 17819B | 0106 | 76 | 8 | 3018J | 0141 | 66 |
| 9 | 17831A | 0006 | 61 | 9 | 3031A | 0003 | 42 |
| 10 | 17844B | 0100 | 75 | 10 | 3045A | 0008 | 43 |
| 11 | 17857B | 0154 | 88 | 11 | 3059X | 0013 | 44 |
| 12 | 17869A | 0054 | 73 | 12 | 3073A | 0018 | 45 |
| 13 | 17882B | 0148 | 87 | 13 | 3087A | 0023 | 47 |
| 14 | 17894B | 0047 | 71 | 14 | 3101J | 0029 | 48 |
| 15 | 17907A | 0141 | 85 | 15 | 3115J | 0034 | 49 |
| 16 | 17919B | 0041 | 70 | 16 | 3129A | 0039 | [illegible] |
| 17 | 17932B | 0135 | 84 | 17 | 3143A | 0044 | |
| 18 | 17944A | 0034 | 68 | 18 | 3157X | 0049 | 53 |
| 19 | 17957B | 0129 | 82 | 19 | 3171A | 0055 | 55 |
| 20 | 17969B | 0028 | 67 | 20 | 3185A | 0100 | 56 |
| 21 | 17982A | 0122 | 80 | 21 | 3199J | 0105 | 57 |
| 22 | 17994B | 0022 | 65 | 22 | 3213J | 0110 | 59 |
| 23 | 18007B | 0116 | 79 | 23 | 3227A | 0115 | 60 |
| 24 | 18019A | 0015 | 64 | 24 | 3241A | 0121 | 61 |
| 25 | 18032B | 0110 | 77 | 25 | 3255X | 0126 | 63 |
| 26 | 18044B | 0009 | 62 | 26 | 3269A | 0131 | 64 |
| 27 | 18057A | 0103 | 76 | 27 | 3283A | 0136 | 65 |
| 28 | 18069B | 0003 | 61 | 28 | 3297J | 0141 | 67 |
| 29 | 18082B | 0057 | 74 | 29 | 3310J | 0003 | 42 |
| 30 | 18095A | 0151 | 88 | 30 | 3324A | 0009 | 43 |
| 31 | 18107B | 0050 | 73 | 31 | 3338A | 0014 | 45 |

# GUIDELINES FOR BETTER TEACHING

**DO'S:**

1. Lecture for fairly short periods.
2. Ask questions around the class.
3. Use overhead projectors some of the time.
4. Use slides and tapes wherever practicable.
5. Use film or videotape.
6. Encourage student participation.
7. Give students work to do such as questions to find answers for . . .
8. Borrow a CRO or any relevant equipment and give a class demonstration.
9. A picture is worth a 1,000 words.
10. Use all available resource materials.
11. Plan your course timetable tightly.
12. Teach proper operating procedures.
13. Give book lists and study guides to promote some organised home study.

**DON'TS:**

1. Lecture for longer than, say, 20 minutes without varying the activity.
2. Waffle on irrelevant digressions.
3. Denigrate the P. and T. Dept. — try to foster good PR with the Dept. ■

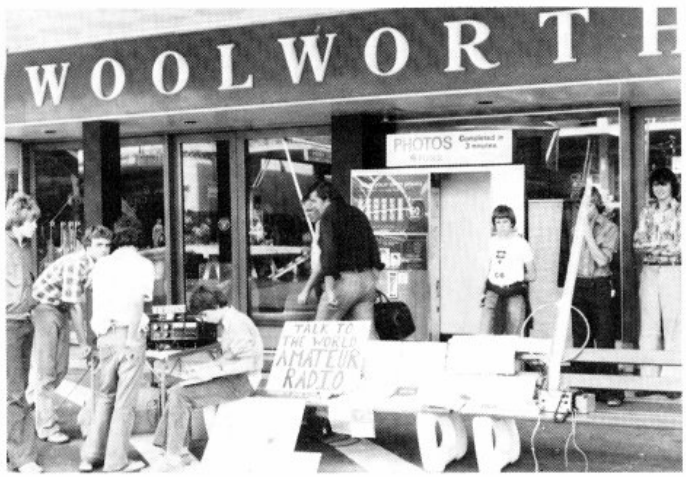
# VK/CB ACTIVITIES

**PHOTOS AND CAPTIONS BY SAM VORON VK2BVS**

How about using 1000 channels mobile in the bus. Just sit back and enjoy the journey.

The antenna is a half wave centre fed vertical dipole running along a plastic pipe. The rig is a Kyokuto running 10 watts on high power and adjusted to 3 watts output on low power.

The 12 volts comes from a 5½ ampere hour motorcycle battery in the pack.




Members of the Amateur and Citizens Radio Club (VKCB) set up this amateur display outside a well known shopping centre in Manly, NSW.

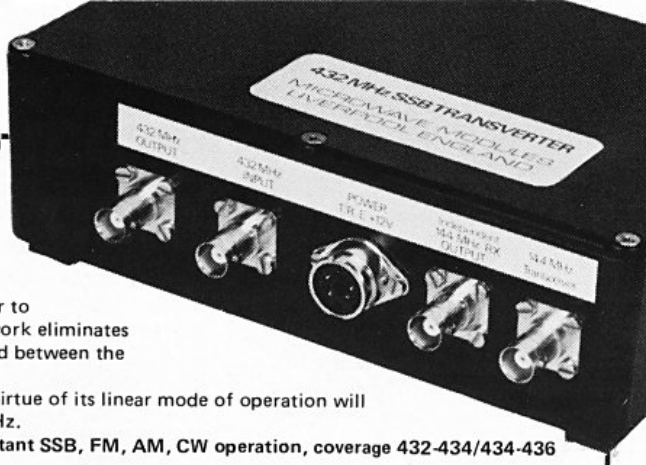
Many new members to the Club who are studying for the coming novice exams helped in running the display and helped to explain amateur radio to the general public.

I found out about amateur radio when I met this fellow standing at a bus stop with a 1000 channel Kyokuto 2 metre FM transceiver.


WIA publicity material proved extremely popular and assisted VKCB members to present the spirit of amateur radio to the public. ■


The Amateur and Citizens Radio (VKCB) Club members about to string up an 80 and 160 metre dipole as part of a display to promote amateur radio during the Red Cross Appeal in April. The location was along one of the main roads in Ryde, Sydney.

# New Release $295




**TRANSVERTER MODEL MMT 432/144S**
UTILIZING an IF of 144MHz * 10 WATTS DRIVE of ½ WATT * VOX OPERATED, TWO SELECTABLE RANGES
FEATURES EXTENDED COVERAGE FOR OSCAR 8

This 432 solid state linear transverter is intended for use with a 144.MHz transceiver to produce a high reliability transceive capability. A 10 watt load and RF sensing network eliminates the need for any anciliary circuitry. A single coaxial connection is all that is required between the transverter and the associated 144 MHz transceiver.

A wide range of applications is offered by the MMT432/114 transverter, which by virtue of its linear mode of operation will enable 144 MHz SSB, FM, AM or CW equipment to be used at 432 MHz. to 436 MHz.

**Simply connect direct to your 2 metre rig, 12 volt supply, fit 70 cm antenna for instant SSB, FM, AM, CW operation, coverage 432-434/434-436 in two ranges.**

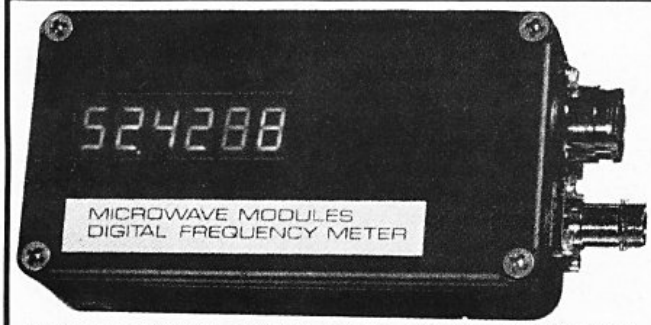
FEATURES: High quality double-sided glass fibre printed board * Highly stable zener controlled oscillator stages * PIN diode aerial changeover relay with less than 0.2 dB through loss * Extremely low noise receive converter, typical 3 dB * Separate receive converter output gives independent receiver facility * Built in Automatic RF VOX with override facility * Built in 10 watt 144 MHz termination, selectable attenuator for ½ watt * Use of the latest state of the art Power Amplifier transistors provide reliable 10 watts continuous output

**MODEL MMT432/144S Price $295**

**TRANSVERTER MODEL MMT 432/28S Features extended coverage for Oscar 8**

Second Crystal Oscillator gives two ranges: Low 432 – 434 MHz – High 434 – 436 MHz. Programming available to either Transmit/Receive both Low, both High, or a mixture of the two. Adjustable Drive Level is now provided by an input potentiometer. Optional RF VOX. Power Output 10 watts minimum * 28 MHz IF * Drive 1 mW to 500 mW * Aerial Changeover by PIN diode switch * Modern Microstrip Techniques * Power requirements 12 volt nominal at 150 mA 2.5 amp. peak * Case size 187 x 120 x 53 cm * Spare 432 input socket.

**MODEL MMT 432/28S Price: $245** **MODEL MMT 144/28 Price: $185**




**500 MHz COUNTER Model MMD050/500**

**SPECIFICATION:**

| | |
|---|---|
| Digit Height | 10 mm |
| Display Width | 45 mm |
| Case Size | 111 x 60 x 27 mm |
| Frequency Ranges | 0.45 - 50 MHz, 50 - 500 MHz<br>Better than 50 mV RMS over 0.45 - 50 MHz. Better than 200 mV RMS over 50 - 500 MHz |
| Input Connector | 50 ohm BNC |
| Input Impedence | 200 ohm approximately |
| Power Connector | 5 pin 270 deg. locking DIN socket (supplied with plug). |
| Power Requirements | 11 - 15 volts DC at 300 mA approximately |

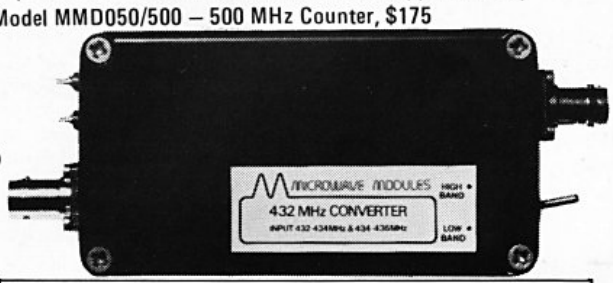
Model MMD050/500 – 500 MHz Counter, $175

**DUAL RANGE 432 – 434 MHz & 434 – 436 MHz CONVERTER**
**TYPE: MMC432/ 28S & MMC 432/144S Price: $67.00**

**FEATURES:**
* Extra Range (434-436 MHz) For Satellite Reception
* Ultra Low-Noise First RF Amplifier Stage
* Highly Stable Zener Diode Controlled Crystal Oscillator and Multiplier Stages

**SPECIFICATIONS:**

| | |
|---|---|
| Input frequency ranges: | 432-434 MHz (low)<br>434-436 MHz (high) |
| I.F. output frequency: | 28-30 MHz or<br>144.146 MHz |
| Typical gain: | 30dB |
| Noise figure: | 3dB Maximum |
| D.C. Power requirements: | 11-13.8 volts<br>12.5V nominal |
| Current consumption: | 50 mA Maximum |




**BNC CONNECTORS – Excellent quality, fully imported from U.K. – U.S. Mil. No. UG88E/U. Price: $1.35 each.**

**NEW READY-TO-OPERATE MODULES AVAILABLE IN THE SALES PROGRAM OF VHF COMMUNICATIONS.**

All modules are enclosed in black cast-aluminium cases of 13cm by 6cm by 13cm and are fitted with BNC connectors. Input and output impedance is 50 ohms. Completely professional technology, manufacture, and alignment. Extremely suitable for operation via sattelite or for normal VHF/UHF communications.

**6 METRE MOSFET CONVERTER**
**Featuring 24 MHz local oscillator output for transverter use:**

| | |
|---|---|
| Input frequency: | 52-54 MHz |
| I.F. Output Frequency : | 20-30 MHz |
| Typical Gain: | 30 dB |
| Noise Figure: | 2.5 dB |
| Typical Image rejectoin: | 65 dB |

Crystal Oscillator Frequency: 24 MHz
Power requirements: 12 volt ± 25% at 35 mA.

**MODEL MMC52/28LO Price: $49.00**

**1296 MHz CONVERTER**
Mircostripline, Schottky diode mixer.
IF: 28-30 MHz or 144-146 MHz
Noise figure: typ. 8.5 dB
Overall gain 25 dB **Price: $65.00**

**CONVERTERS**
**PACK & POST $2.00**

**144 MHz MOSFET CONVERTER**
Noise figure: typ. 2.8 dB.
Overall gain: typ. 30 dB.
IF: 28-30 MHz, 9-15 V 20 mA.
**Price: $45.00**

**VARACTOR TRIPLER 432/1296**
Max. input at 432 MHz. 24 W (FM, CW) - 12 W (AM)
Max output at 1296 MHz: 14 W
**Price: $74.00**

**AMATEUR ELECTONIC IMPORTS IS THE EXCLUSIVE AUSTRALIAN DISTRIBUTORS FOR THESE PRECISION BRITISH MADE UNITS FROM MICROWAVE MODULES LTD.**

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# bail Specials

**A selection from the wide range of Ham radio equipment and accessories available at Bail.**

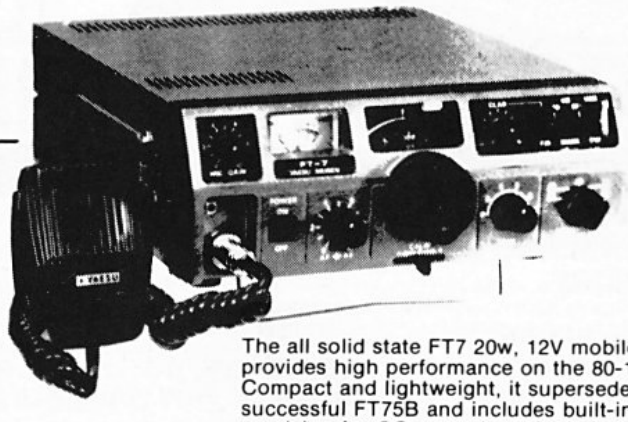
## 24 HOUR WORLD CLOCK

## QTR-24

QTR-24

QTR-24 is a new addition to the range of Yaesu fine instruments. With a glance the time in any principal city or time zone can be simultaneously co-ordinated with local time on a 24 hour basis. The QTR-24 is powered by a 1.5V dry cell, which has a normal life of approx. one year.

## NEW! FT7 Mobile



The all solid state FT7 20w, 12V mobile tcvr. provides high performance on the 80-10m bands. Compact and lightweight, it supersedes the successful FT75B and includes built-in VFO, provision for CC operation, single knob tuning, NB, plus many more desirable features. Ideal for novice and O.T.

## LOW PASS FILTER

Keep your neighbours as friends — reduce or eliminate TVI with a low pass filter. Properly attached to output of Amateur or CB Tcvr. attenuates all harmonics in TV channels or FM band.
**DRAKE TV-42 LP 3 section 300w — $25.00**
**YAESU FF50-DX 3 section 1kW — $39.00**
(not illustrated):—
KW Decca 5 section 1kW — $59.90; LP7 Low power $10.50.

## HAVE YOUR OWN 10m MOBILE

**GTX-3325 SSB/AM 23 Channel CB — You Modify it for 10m coverage!**

An economical way to launch into 10m mobile or DX. Set comes complete with mobile mount, mic, power cable, operating manual with original circuit.

**Price only $99.95**

## SWR METER

**RS-101 SWR. Power Meter**
Compact and rugged unit for CB radio antenna installations. A special function switch is utilized for easy operation. Power 0-10 watt. SWR meter 1:1-1:3. **Priced at a low $7.50**

## BALUN

Reduce RF radiation from your feedline. 1:1 Baluns for beams and dipoles. Power rating 2kW PEP.
**Hy-Gain BN-86 $30 (illustrated)**
**Western BA1 $22.**
300 Ohm model to be available later

## DIPOLE TRAPS

**Multiband HF Dipole trap sets**
Make your own 80-10m trap dipole. Kits consist of 2 weather sealed trap coils and special centre insulator. Dimensions included with kit.
**KW Decca $38.**
**Western $35.**
(Wire, coax or twin-feeder, and end insulators extra).

## SWR METER

**OSKER SWR200 — SWR and Power Meter**
Easy-to-operate and high sensitivity standing wave ratio and power meter for practical use by radio amateurs. Push button 75 Ohm or 52 Ohm operation. Power range 0-200w and 0-2kW, accuracy — + 15% at SWR 1.
**Priced at $75.00.**

Also available — SWR 40, $23.00 and FSI-5 at $32.00.

## ANTENNA COUPLER

Extremely important, especially with modern all-solid state transceivers, is the maintenance of a very low SWR to avoid destruction of costly high-power P.A. transistors. An antenna coupler enables precise adjustment with almost any antenna.

**HC 500A-160-10m, up to 500w pep $249**
Other couplers available from 200w up to 2.5 kW — including FC301 Yaesu-160-10m, up to 500w pep, $195.

## DUMMY LOAD 10W peak

Dummy load built into a PL-259 plug for easy connection to the back of your rig. No need for large cans, this has a built-in lamp which lights up on transmission, showing AM carrier with modulation varying the intensity of the lamp.

**$1.60**

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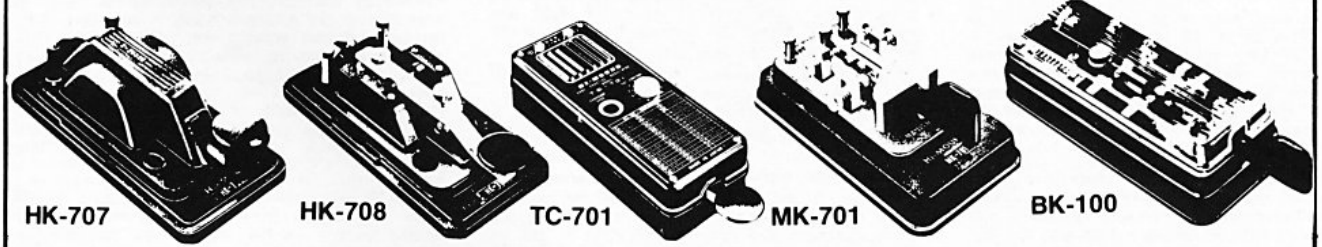


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# AN EXPANDING WORLD

*Eric Jamieson, VK5LP*
Forreston. 5233

**AMATEUR BAND BEACONS**

| | | |
|---|---|---|
| VK1 | VK1RTA, Canberra | 144.475 |
| VK2 | VK2WI, Sydney | 52.450 |
| | VK2WI, Sydney | 144.010 |
| | VK2RHR, Mittagong | 144.120 |
| VK3 | VK3RTG, Vermont | 144.700 |
| VK4 | VK4RTL, Townsville | 52.440 |
| | VK3RTT, Mt. Mowbullan | 144.400 |
| | VK4RBB, Brisbane | 432.400 |
| VK5 | VK5VF, Mount Lofty | 53.00 |
| | VK5VF, Mount Lofty | 144.800 |
| VK6 | VK6RTV, Perth | 52.300 |
| | VK6RTU, Kalgoorlie | 52.350 |
| | VK6RTW, Albany | 52.950 |
| | VK6RTW, Albany | 144.500 |
| | VK6RTV, Perth | 145.000 |
| VK7 | VK7RNT, Launceston | 52.400 |
| | VK7RTX, Ulverstone | 144.900 |
| | VK7RTW, Ulverstone | 432.475 |
| VK8 | VK8VF, Darwin | 52.200 |
| JA | JA2IGY, Nagoya | 52.500 |
| KG6 | KG6JDX, Guam | 50.110 |
| KH6 | KH6EQI, Hawaii | 50.104 |
| TI | TI2NA, Costa Rica | 50.080 |
| W | WA6JRA, Los Angeles, USA | 50.091 |
| ZL1 | ZL1VHF, Auckland | 145.100 |
| | ZL1VHW, Waikato | 145.150 |
| ZL2 | ZL2VHP, Palmerston North | 52.500 |
| | ZL2VHF, Wellington | 145.200 |
| | ZL2VHP, Palmerston North | 145.250 |
| ZL3 | ZL3VHF, Christchurch | 145.300 |
| ZL4 | ZL4VHF, Dunedin | 145.400 |

Being winter time, there has been a great fall off in overall activity on both 6 and 2 metres. There have been the occasional 6 metre Es opening, the last one being Saturday, 22-7-78, when VK2 were contacted from VK5. Overall, though, activity on 144 and 432 MHz has largely disappeared for anything of great note anyway.

I have been pleased to receive a letter from Bill VK2HZ, who contributed notes to "Wireless Weekly" and "Radio and Hobbies" for a period 1933 to 1963, when Pierce Healy took over the "Amateur Radio" notes in what is now "Electronics Australia". Bill has had a long interest in 6 metre propagation and was active in the 1958 sunspot maxima on 50 MHz. He sends the following information of that era which will be of interest to all those who look a little further than across town for their contacts on six.

"DX working to VK was mainly restricted except for TEP working, but one point seemed to be clear, that contacts to W and XE were via the F layer while KH6 contacts were by TEP judging by times.

"With so much speculation on what cycle 21 is going to bring us in the way of sunspots and F layer and TEP VHF working, it is pleasing to note to date perhaps the optimists are winning. Some have forecast a 1958 repeat with the 200 sunspot number of cycle 19, while others estimated the cycle 21 peak would not reach the 108 number of cycle 20.

"In case the sunspot number does reach high levels we can look at the 50 MHz band conditions for 1957-8-9 and the DX contacts available, with some interest. July 1957 to July 1958 was the IGY year and radio amateurs were requested to report on propagation conditions. With the arrival of TV our 50 MHz band was re-allocated to cover 56 to 60 MHz. During IGY we were permitted to return and use the 50 to 54 MHz band. This permission was later extended to 31-12-59; our 'friend' TV Channel O had not been allocated for use up till that date.

"During IGY VHF activity was high and governmental financial support was afforded many IARU National Societies, to co-relate propagation data made available to them by individual radio amateurs.

"Looking back over notes written at the time the information available is by no means complete, but sufficient to make the VHF gang stick about during the summer and equinoxial periods of the next few years.

"Currently we have on the plus side towards good DX: SSB, greater experience in gauging possible band conditions, more 'after-burners' outside W land, more efficient antennae (a question mark here, as there were plenty of wide spaced yagi aerials in 1958) and finally we still have CW, as I am not certain how many of the 1957-58 contacts were made using this mode.

"On the minus side, of course, our greatest handicap will be the fact we can no longer use 50 to 52 MHz. The JAs, KH6s and most Pacific and Asian stations know where to find us. SMIRK (Six Metre International Radio Klub) in their bulletins is doing an excellent job publicising that VKs and ZLs can only be found above 52 MHz (not true for ZL, but they mainly operate there). Another factor that may affect the number of DX contacts made is the restricted operation these days, wih so many stations in TV Channel O service areas, and no longer operating.

"The following snippets of news cover some of the 1957-8-9 activity: Soon after July 1957 VK2WH and VK2ARG were contacting JAs but as usual the VK4s had a mortgage on most of them. The Ws were in contact with EI, LA and SM stations on 50 MHz and in addition cross-band working 28/50 MHz with OH, PAO, F and Gs.

"The LUs were very active, in five days on 50 MHz LU3EX worked ZP5, KP4, CO2, CE, JA, XE, PY6, OA4, CX, TG9, YV, PJ2, TI, KH6 and Ws, a fair effort for any band! By February 1958 quite a number of W stations had recorded WAC, the first credited to a W6.

"Down this way, K6RNQ contacted ZL4GY on 1-2-58 and ZL2ABX the following day, both contacts around 0001Z. JAs were there for the taking in all Australian States.

"Quite a number of leading stations had over 25 countries confirmed on 50 MHz. The ARRL offered a special trophy for the first 50 MHz WAC confirmed; Bob Perry K6GDI was the ultimate winner. Some G stations in selected areas were permitted to operate on 50 MHz with power up to 500 watts. WAC on 50 MHz by W stations reached over 20 and February, March and April, 1958, provided the best periods. In March Ws worked into New Zealand for 15 days and in April for 10 days. The VK4s were contacting KH6 and W, times appeared to be around 2300Z for Ws and 0700 to 1000Z for KH6. (The latter fitted in with 1978 April openings from VK2 to KH6 times, 0700 to 0830Z.)

"By September some DX stations were thinking of 50 MHz ARRL WAS Certificates, EI2W had 35 listed, SM7ZH 29, PZ1AE 26. The 12,000 miles 50 MHz DX record LU3EX to JA6FR had been challenged (incidentally, it still stands). CT3 had been worked long path by a number of JAs — 17,000 miles, but rather a difficult one to substantiate!

"In November 1958 the band opened practically daily from G to W and G6LX worked 150 Ws in three weeks. 1959 afforded good DX, too, and many of our State DX distance records for 50 MHz were made then (see Call Book).

"The above information is rather sketchy but does give an indication of what can happen. We are rather isolated down here in VK but a sunspot count of towards 200 could make it really interesting."

Thank you, Bill, for that most interesting information; it will surely consolidate the interest being shown by so many of the present day six metre operators and speed many more to get on with the upgrading of their gear.

On the subject of gear, etc., a few words might not go astray at this point to help the less informed or newcomers to six metres to establish contacts of a DX nature, and in particular, to Japan. A number of operators have observed when the bands opened to JA that, irrespective of the strength of the signals, there is little point in turning up the wick on your after-burner. It does nothing but create QRM on your frequency. It is to be borne in mind that most JA operators use 10 or so watts of power output, no more. If you bore in and pump your 200 watts of SSB up their way, it means instead of perhaps 20 stations hearing you if you ran 10 watts, about 500 will hear you, and all come back simultaneously, with the result you work no one. So point one, no matter what the conditions, you would generally expect to work more JAs with 10 watts than you will with 200 watts

Go easy with your rate of speech, remember, the JAs have learnt to speak English so they talk to you, we haven't bothered to learn Japanese to reciprocate. Therefore limit your range of vocabulary to the more simple and useful words, and don't speak too fast. Common or slang words which may have a useful meaning here in VK will have no meaning in JA, so don't use them. And use the recognized phonetics, not some fancy word of your own choice, it won't help to get your call sign across at the other end amongst their level of QRM.

DX conditions in the south of Australia are often quite different from that prevailing in the north in Queensland and Northern Territory, so anybody up that way already grinning at these comments, may I suggest you come down here and try your hand!

Here at my QTH I monitor a TV video signal coming from the north (location unknown) on 49.750 MHz on a separate converter/receiver combination. During periods of DX activity this sign can be copied for many hours a day from abo 0200 through to 0730 and sometimes later, at S1 to S3 or 4. When it peaks to S5 or better it is time to look on 50 MHz and almost without exception signals will be found there, mostly from Japanese amateurs, but with other northern TV rubbish putting birdies all over the band. This will be as far as the amateur signals will reach with the TV video at S5. If there are those who believe that because amateurs can be heard on 50 MHz they will also be capable of being heard on 52 MHz under these conditions then they need to think again, because here in southern climes anyway the fact that we operate 2 MHz higher is quite sufficient to mean no contacts. When the video signals rises to S6 and higher (it has been S9+) then you can start working JAs on 52 MHz.

There is, however, another nigger in the woodpile. The closer you are to the north, the better your chances of working JAs. When I say north I am not referring to the Northern Territory or Queensland in this case, but on a local basis. Here in VK5, David VK5KK at Wasleys lives about 25 miles further to the north than I do; he is able to work more JAs and with stronger signals than I can, not only occasionally, but time after time. It would be true to say David receives JAs three to four S points stronger than I do on most occasions! We both run comparable equipment and antennae David therefore will, it seems, work more JAs than the Adelaide boys as they will be a further five miles further away. So signals from the north under present conditions at any rate, are very selective, so before you throw your equipment away, remember to look at your map if someone receives JAs better than you, he may be to the north of you!

Summing up, keep the output power down to work JAs in the southern areas at any rate, have the best possible antenna you can afford to build or buy, as high as possible, and with nothing worse than RG8AU coax feeding it! Keep your linear amplifiers for use with the Ws, KH6s and the other exotic areas, you will need all you can give them to be successful if we can follow the advice of those who have already worked into there.

The VK six metre calling frequency is 52.050 MHz, if you are in the shack working at the bench, keep a receiver running on the call frequency, but remember to call yourself from time to time — no one will ever be worked if we all listen all the time! Always call with the linear on, and if you make contact, move off the call frequency, others may not be able to hear you, but you may block someone from hearing a third party.

We who have been on the bands for a long time hope all the newcomers will keep an ear and tongue on six metres, especially during September-October, summer months, March-April at least for the next two or three years, but particularly 1979. The more operators there are to be heard on our isolated segment of six metres the more likely

we are to induce a few more rare DX stations to come up and look for us.

As mentioned earlier, band conditions haven't been the best in this mid-winter period, and this view is supported by the falling off in letters received, which is normal for this period. However, I was pleased to have a state visit from Allan VK4ZRF and Steve VK4ZSH recently, and we were able to swap VHF comment. Steve is keen to try meteor scatter experiments, and would welcome correspondence from anyone interested in VK5, or other suitably distance placed areas. For your information in this regard more favourable meteor showers for the remainder of the year are as follows:

Orionids: 16th to 20th October, peaking on 21st.

Taurids: 20th October to 30th November, peaking 8th November.

Cephids: 7th to 11th November, peaking 9th November.

Leonides: 15th to 17th November, peaking 17th at 1300Z.

Geminids: 7th to 15th December, peaking 14th at 0700Z.

Ursides: 17th to 24th December, peaking 21st December.

A brief EME report from "The Propagator" regarding the 432 dish at Dapto, indicates the feed antenna and its reflector, the feed box and all of the coaxial cable, control cables, etc., from the feed box have been removed by VK2BOZ, VK2ZHU and VK2ALU. None of the equipment installed by the Moonbounce Group now remains at Dapto. Enquiries are continuing as to what means you use to transport a 30 foot dish!

Lyle VK2ALU advises there has been an almost nil response to his enquiry regarding anyone interested in 3 cm activity. Are there any interested persons further afield than Dapto?

From the "Geelong Amateur Radio and TV Club Newsletter" comes a snippet from Harold VK3CM . . . "The FCC has proposed that all new licences in the Pacific area shall be given KH prefixes, together with a digit denoting the actual island group on which the station is located. Likewise, in the Caribbean area the prefix will be KP and a digit. New "Military Recreation" stations will use the WN prefix." This is mentioned as it is likely six metre operators will in the next year or two come across some of these new prefixes and will be wondering why long existing call areas have changed, i.e. we may ultimately see a Guam signal emanating as KH? instead of the present '96.

**CHANNEL 5A**

I suppose it is about time I climbed on the bandwagon and started to beat a few drums on the subject of the likely increase in the number of such stations in Australia, particularly in the various metropolitan areas. However, I am not going to beat the drums like some people have been judging by what I read in various publications and hear on the air, I would like to believe commonsense and logic would prevail at all times from the mouths of my fellow amateurs.

First I would say the emphasis of the criticism being levelled at the P. and T. Department is reasonable to a degree because there have been a number of instances of short-sightedness in the past, but I do believe it is totally unfair for the blatant criticism being levelled at the actual officers of the Department, those who carry out the tasks delegated to them. From personal contact I know there are some very bright boys in the P. and T., who have been very helpful, and always willing to pass on knowledge gained. Probably the greater share of criticism should be levelled at the WIA, who for years appear to have been afraid to rock the boat too much at times, for fear of falling into disfavour. Nevertheless, I believe they have been very genuine in their approaches to the Department and have achieved quite a lot.

Having said that which needed to be said above, and got rid of the brickbats, let's perhaps generalize a little, firstly to support the correspondence by the Federal President of the WIA, which has already been published, and to add my own plea for all to keep writing your letters to the various politicians and ethnic broadcasting interests stating how you feel. Unfortunately, we don't have the numbers the CB boys have, where sheer weight of numbers obtained for them the 27 MHz band, and for the same reason there is as much chance as "Buckley's" that they will vacate that band in 1982 as the P. and T. says they will! But what we lack in numbers maybe we can by constant pressure in the right quarters start to make somebody hesitate.

There can be no doubt that the introduction of the 5A services on a large scale in Australia will eventually turn out to be one of the greatest blunders ever made, and there have been some beauties before! At the moment there exists a great opportunity to start using the UHF bands allocated for television broadcasting in Australia. Except for some of the earliest colour TV sets manufactured, for some 2½ years now all colour receivers had to be equipped with UHF channels. Those early models that were not all had provision for UHF tuners to be added — I know because colour TV servicing is my bread and butter!

In the course of my work I use a service vehicle fitted with UHF FM two-way radio on 469 MHz which operates in conjunction with a base station on a hilltop not far from the Adelaide television stations, but not as high. The antenna on the vehicle is about 6 inches long, there is a groundplane or some similar antenna at the base station, and both base and mobiles run 25 watts of power. My service area extends to 40 miles from the base station and at the extreme end of the run I still have excellent copy both ways. The penetration into the valleys and through townships is quite staggering, and has been an eye-opener to me. Ordinary houses don't attenuate the signals a great deal, but high hills close in do, the same as it does on VHF. The arguments being currently circulated that the coverage of the UHF stations would be so much less than on the existing VHF channels is plain hogwash! The areas of poor reception on UHF are still areas of poor reception on VHF. My TV service area is throughout the Mount Lofty Ranges, much of it not line of sight like the Adelaide area, and apart from a few pockets of poor reception, most people don't miss out on much television. Increased gain and directivity for UHF receiving antennae will be relatively easy to achieve, and it is therefore quite likely in some areas of difficulty UHF TV may be superior to VHF TV.

There is no doubt any form of operation by amateurs in the 144 to 148 MHz band will interfere with television. Some of the VK5 amateurs recently conducted tests in the Loxton area of SA where there is a vertically polarized Channel 5A transmitter. In the Renmark area, some 3 km line of sight from the transmitter tests were made using a mobile FM rig with the usual quarter wave whip antenna on the roof. With 5A transmitting, it took a distance of a quarter of a mile before interference disappeared from the TV screen with 1 watt output, with 10 watts it took half a mile, and with the TV station not transmitting over three-quarters of a mile before the QRM was not really evident! You can see from this just how much opportunity you will have of doing any operating at all on 2 metres during TV transmission hours. The capital city repeaters will probably have to be closed down during those hours, FM simplex channels will vanish, and the SSB boys down around 144.1 MHz can virtually sell their equipment unless they feel like operating after midnight or around 6 a.m.

The part that hurts me is that Australia is unique in having two non-standard (by world accord that is) TV channels, namely Ch. O and Ch. 5A. Both of these are arraigned alongside the two most used and most satisfactory amateur bands we have. In Ch. O areas for years 6 metre operation of any consequence has been wiped out, and now we are faced with a similar situation on two metres. Operation on two metres will not only be restricted because we interfere with TV sets, but the rubbish transmitted on 2 metres by the TV stations themselves precludes any form of weak signal operation — birdies every 15 kHz approximately right up the band, just like the interference you get on your transistor radio when operated near your TV set.

The amateurs of Australia have been a rather law-abiding bunch generally speaking, accepting that controls of the frequency spectrum have been and are necessary so all may have some enjoyment from them. Amateurs have accepted in the past that if they interfere with a TV set in their area then they either take steps to rectify the trouble if that is possible, or operate outside TV hours. To continue to be law-abiding that's just what will happen when the 5A stations get going, you will be obliged to stay off the air, after all, you have to live with your neighbours.

But do you remember just how easy it became to lose the 27 MHz band. P. and T. were bludgeoned into acquiescence, and all that was needed was simply to post out to each amateur a letter stating that after a certain date the band was no longer available, as simple as that. And that's what will happen with 2 metres. You will get a letter stating if you are unable to operate during TV hours of 5A without causing interference then you are to cease operating during those hours. Then the ever greedy commercial interests will finish up on the remnants of the 2 metre band and fixed and mobile services will eventually take over, particularly in areas away from the city — thus a few more MHz to be allocated.

I have mentioned it before, but there has never been an answer forthcoming. The USA has a population some 20 times that of our own, and therefore it seems reasonable to assume they would have a FEW MORE commercial services and television stations than we have, but they don't have any more spectrum space, in fact, they have less than Australia, because they don't have Channel O or 5A allocations, but still fit in all their TV stations, and have FM broadcasting on a large scale, too. The USA amateurs have 50 to 54 MHz AND 220 to 225 MHz, being 7 MHz more for the amateurs than we have, but they still manage to fit in all the commercial services and television! And I would guess that places like New York, Chicago, Washington, San Francisco, etc., do have more people and companies than even Sydney or Melbourne, and thus more two-way radios, television and FM stations, and amateurs!

It is also difficult to understand why Australia has ignored the satellite broadcasting which takes place in the 5A band, that's an international allocation which we seem to proudly flaunt.

Generally speaking, it would probably be fair to say we amateurs are only a confounded nuisance to the Australian Government, whatever party. We are tolerated, that's about all. If we didn't exist no tears at their level would be shed, in fact, it would be a blessing, because more frequencies would be available and that means more money in the bag. The worst part is simply that we cannot do as quite a large number of the CB boys have, operate without licences, if we felt so inclined; we are already known to the powers that be, whereas the illegal CBer is unknown and operates with immunity. I am not against the CBer at all, but he operates generally with only minimal interference to TV, but amateurs don't have that opportunity if they wanted to; they still have to live with their neighbours!

I could go on dragging up other matters, but don't see the good it will do. Others in this and similar publications can still have their say. I have penned these lines in response to those who have asked why don't I say how I feel. Well I have now. And you can see I am not happy; I have had a lot of pleasure from 2 metres over the years, and had some outstanding contacts, and it grieves me to think all this could end because selfish commercial interests which already have huge slices of the frequency spectrum are not prepared to be realistic in their thinking and start thinking in terms of using the UHF channels so readily available to them.

So keep those letters going, see your politician personally, remember the final decision of what is used where in the frequency spectrum is made by the politicians.

There have been no late letters, so we will conclude for now with the thought for the month: "The man pulling the oar has neither the time nor the inclination to rock the boat."

73. The Voice in the Hills. ■

# DIVISIONAL NOTES

**JULY 2 METRE FOX HUNTS**

The Melbourne 2 metre Fox Hunt for July was held on Friday, 21st July.

The fox for the evening was Kevin VK3AUQ, who provided six interesting hunts, finishing with supper at the home of Gil VK3AUI.

Nine teams of hounds took part and these were represented by VK3AAE, VK3ANX, VK3BAY, VK3BLI, VK3BMO, VK3BMV, VK3JK, VK3YJM and VK3ZCX.

Competition was very fierce as VICOM had offered a prize for the winner. The lead see-sawed back and fourth during the evening with Hank VK3BLI being the eventual winner.

**Russell Kelly VK3NT, presenting Vicom Prize to Hank VK3BLI.**

During supper the winner was announced and presented with the VICOM prize by Russell Kelly VK3NT, an FET Voltmeter. VICOM are thanked for their interest and support which provided such a fine competitive evening.

During the next 12 months the best performance in the Melbourne Fox Hunt will be counted towards an aggregate with a prize to be awarded by VICOM.

Should be an exciting series of hunts and some special events will be organised.

The September Fox Hunt is on Friday, 15th September. ■

# CONTESTS

Wally Watkins VK2ZNW/NCU
Box 1065, Orange 2800

**CONTEST CALENDAR**

| | |
|---|---|
| **September** | |
| **16/17** | **Scandinavian CW** |
| **23/24** | **Scandinavian Phone** |
| **October** | |
| **7/8** | **VK/ZL/Oceania Phone/RTTL (Loop to ZL2GX this year)** |
| **14/15** | **VK/ZL/Oceania CW** |
| **14/15** | **RSGB 21/28 MHz Phone** |
| **21/22** | **RSGB 7 MHz SSB** |
| **28/29** | **CQ WW DX Phone** |
| **November** | |
| **25/26** | **CQ WW DX CW** |

When I took this job over I was advised that I should take steps to get the as yet uncontested Contest Champion Trophy out of the Federal Secretary's office. Next month the rules for this trophy will be announced. Each period will run for a calendar year starting January 1979.

Contest arrangers please note that copy regarding your local contests **must** be in my hands four (4) months before the event, otherwise I cannot guarantee publicity for you. This will allow me to meet my deadline and also takes into account that AR gets out about mid-month.

Another revision of the RD scoring has been requested and anyone with ideas should send them to the above address. Do not complain if I make a unilateral decision and you have not bothered to pass on your ideas.

Further details for contests, send stamped and self-addressed envelope. ■

# WICEN

Ron Henderson VK1RH
Federal WICEN Co-ordinator.
53 Hannaford St., Page ACT 2614
Ph. (062) 54 2059, A.H.

Are we short-changing ourselves in relation to publicity for radio amateurs' work in emergencies?

The WICEN Notes in June and July AR provide food for thought.

WICEN — The Wireless Institute Civil Emergency Network — has been operating for a great many years to assist the authorities, both official and unofficial, during any (notified) emergency. WICEN is officially recognised by the National Disasters Organisation (NDO) and certain State Emergency and Police Services.

Amateurs ought to be in a better position to assist in handling emergency traffic than any other service by reason of their keenness, numbers, responsible behaviour and discipline, training, equipment — both fixed, mobile and repeaters, improvisation and technical knowledge, Australia-wide communications — and world-wide also.

Have you enrolled with your local WICEN group? If not, why not do so now? The various co-ordinators are listed below. Because we all hope most sincerely that emergencies are rare occurrences we tend to become disinterested but there are a great many events all over the Commonwealth where emergency-type traffic can be indulged in for practice (and fun too). Such events require approval from the licensing authority but this is arranged by your WICEN Co-ordinator if only he knows about them and local amateurs' interest in them.

The NDO conducts an annual disaster exercise around October and a pipe-opening warm-up has been suggested. In Victoria, amateurs operate the communications for the Red Cross Murray River Canoe Marathon around Christmas and New Year. These communications were previously conducted by the Army. In New South Wales WICEN is a very active organisation and is part of the Volunteer Rescue Association.

**STATE WICEN CO-ORDINATORS**

ACT: VK1ZJR, 19 Gungarra Cres., Rivett, ACT 2611. Ph. (062) 88 5624, A.H.

NSW: VK2NL, c/- Wireless Institute Centre, Crows Nest 2065. Ph. (02) 665 7434.

VIC.: VK3AED, Lot 8, Ballarto Rd., Skye, Vic. 3977. Ph. (02) 647 3877.

QLD: VK4ZMG, QTHR.

SA: VK5BW, QTHR. Ph. (08) 87 7787, Bus.

WA: Sid Jenkins L60206, QTHR. Ph. (09) 349 6909, A.H.

TAS.:VK7RR, QTHR. Ph. (002) 23 7454, A.H.

NT: Darwin Amateur Radio Club, P.O. Box 37317, Winnellie 5789.

Next time, some notes on WICEN frequencies, call signs and what to do in emergencies, as well as, later, how to do it. ■

# MAGAZINE INDEX

*Syd Clark, VK3ASC*

**CQ February 1978**
A Giant LCD Clock; The Double-Barrelled Whirling Bedspring Antenna; Television Interference and the Citizens Band Radio Service; Computers — Do You Really Need One; An RTTY Primer, Pt. 3; The National SW-3 Receiver; CQ World-Wide WPX/SSB Contest All-Time Records; Some Comments on Speech Processing; QSL Managers — The Unrecognised Heroes.

**CQ March 1978**
DXpedition to Istanbul and Khartoum TA7ABK/ST2SA; HF Operating — Remote Control Style; Computers — How They Function; The Metamorphis of CQ; A Miniature Quad Loop Antenna for 15/10 Metres; What to Do About RF in the Shack; Easy PC Board Fabrication Using Address Labels; Hamfesting in Western Ohio; Getting on Two in a Hurry; State of the Radio Art — 1929; Kenwood R599D Rx and T599D Tx Review; More on the Monster Quad; LED Devices.

**HAM RADIO February 1978**
Understanding and Using Frequency Counters; Simple Frequency Counter; Direct Counting to 100 MHz; Front Ends for a 500 MHz Frequency Counter; Temperature Control For Crystal Ovens; Satellite Tracking Calculations with Pocket Calculators; High Impedance Counter Pre-Amplifier; Wide-Range Capacitance Meter; Solid-State VHF Transmit-Receive Switch; Digital Scanner for Two-Metre Synthesizers; Single Sideband Reception with the Collins 51J; Active Filters Using Discrete Operational Amplifiers.

**RADIO COMMUNICATION April 1978**
Improved Strong Signal Performance Using Double Balanced Mixers; Alternative Repeater Shift for the TS700; A Transmitter Monitor for 144 MHz; A CMOS Frequency Counter for Receivers; A Time Share Servo SWR Meter; An Assured Speech Process. Calculation of Distances Between QTHs Using Scientific Calculators; A CMOS RTTY Modulator for New Tones.

**RADIO COMMUNICATION May 1978**
A Channelized 144 MHz FM Transmitter-Receiver; The Development, Theory and Use of Nickel-Cadmium Batteries; Modifications for the W6MXV and other SSTV Monitors; Sunspot Cycle 21 — The Peak, How Much and When; Orbital Predictions for OSCAR 8.

**RADIO ZS February 1978**
VHF Scatter Propagation, Part 3; 2m Facsimile Transmission.

**RADIO ZS March 1978**
Pictures by Radio — The Instant QSL; CQ Bermuda Triangle; The Poor Man's VHF — Crystal Frequency Trimmer.

**RADIO ZS April 1978**
Radiation Patterns of Long Wave Aerials; The ASTRO 200, Equipment Review; In Support of Unity; The South African Signal Company 1914-1918. ■

# AROUND THE TRADE

**QSL CARD HOLDERS**
Quality QSL, who have been making QSL cards for quite some time now, have just released a QSL card album to keep your QSL cards in order. The 12 in. by 8½ in. album holds 60 QSL cards in non-slip clear pockets and includes 16 log book pages plus a page of different codes and the phonetic alphabet. The vinyl (black or brown) cover is printed with gold foil and is of the highest quality. The multi ring binding allows you to add more pages of QSL holders and also log book details, these extra pages are available separately from Quality QSL. The QSL Album and Log Book is available from Quality QSL of 26 Station Street, Nunawading 3131, for $9.95.

**NEW ANTENNA TUNING UNITS**
Daiwa Corporation of Japan have released a new range of high quality antenna tuning units which also incorporate a built-in SWR and power meter.

Two models are available, one capable of handling 500 watts PEP and the other 200 watts PEP. Both units have a frequency coverage of 1.8 to 30 MHz and an unbalanced output of 10 to 300 ohms.

The SWR/PWR meter uses a direct-reading twin needle meter which is not frequency conscious and has a low insertion loss. The ATU incorporates a three position antenna selector switch for connecting different antennas and features good quality construction as found in other DAIWA products.


**Daiwa Antenna Tuner.**

Further information is available from the Australian Distributors, Vicom International Pty. limited, 68 Eastern Road, South Melbourne, ctoria.

**NEW 520 MHz FREQUENCY COUNTER**

Parameters announce new 520 MHz Frequency Counter.

The new B & K Model 1850 Frequency Counter recently released for sale in Australia is designed for engineers and technicians requiring accurate frequency measurement extending into the UHF range.

The Prescale range covers 10 to 520 MHz, while the normal range is from 5 Hz to 60 MHz. Auto-ranging is featured on both normal and prescaled ranges. Gate times from 10 ms. to 1 second are automatically selected in the prescale mode, and the normal range. For manual gate time selection, 1 second operation in normal and 10 seconds in prescale are selectable.


For accurate very low-frequency measurements, the 1850 has period measurement capability. This feature makes it easy to measure the tone encoding frequencies used in many types of communications systems. Period frequency range covers 5 Hz to 1 MHz, with selectable 100 period average or AUTO display reading in AUTO, a period average of 1, 10 or 100 is selected. In PERIOD, as in other modes, decimal-point position and unit of measure display is automatic.

Input lead and DC power cord included.

For further information contact Bruce McCarthy, Parameters Pty. Ltd., 68 Alexander Street, Crows Nest, NSW 2065. Phone: 439 3288.

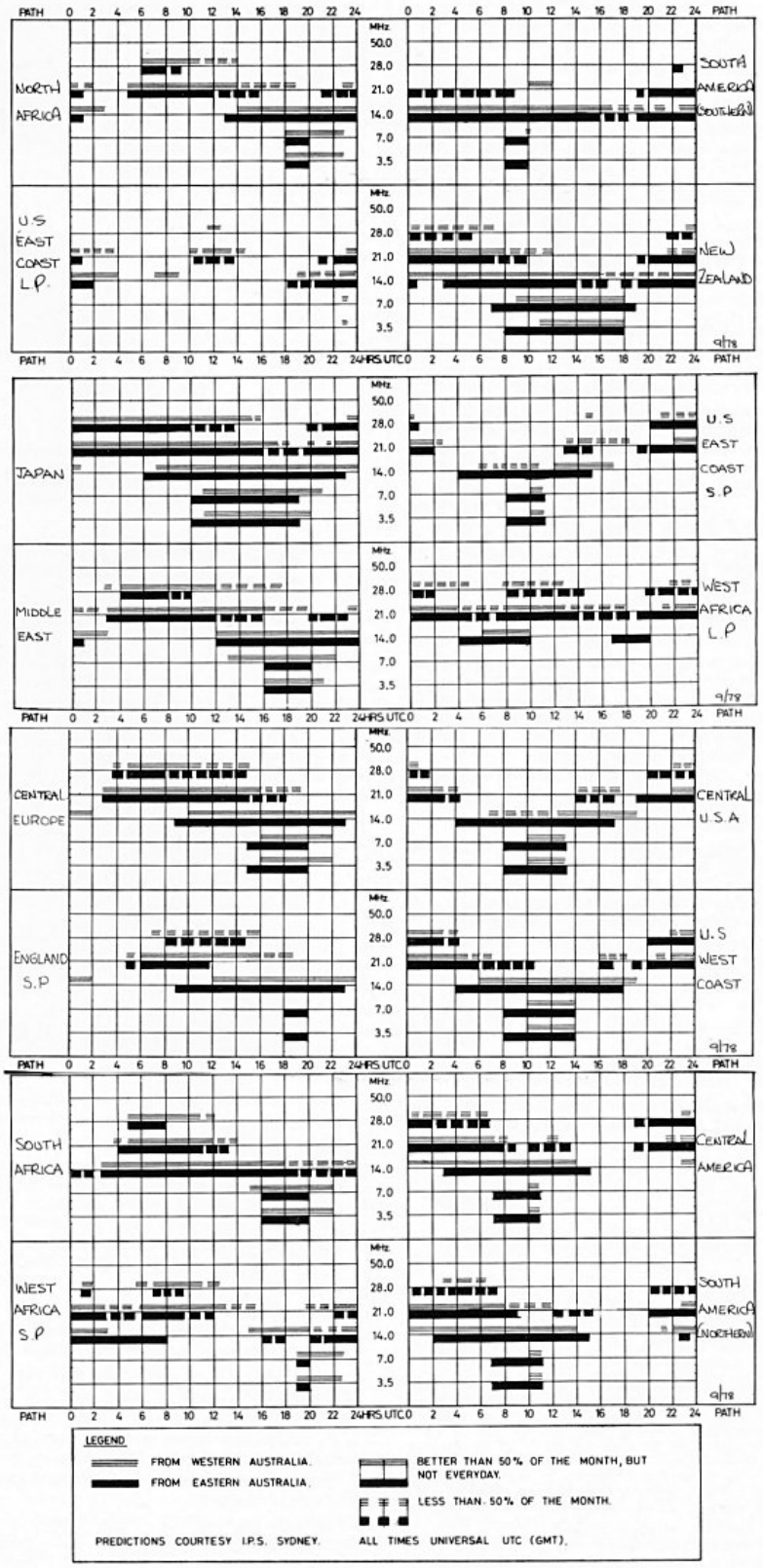
# QSP

**JOTA — WOVEN BADGE**

In 1978 Jamboree on the Air (October 21st and 22nd) the 1st Tea Tree Gully Group will operate VK5BPT and VK5MG. Besides normal QSLs, all senders of QSLs to the group (Box 167, PO St. Agnes, SA 5097) will receive a woven badge, which is the group's scarf badge newly approved this year. Bands in use — 160, 80, 40, 20, 15 and 10. Also 2m perhaps. ■

# IONOSPHERIC PREDICTIONS

*Len Poynter VK3ZGP/NAC*



# AWARDS COLUMN

*Brian Austin, VK5CA*
P.O. Box 7A, Crafers SA, 5152

**THE BIRD OF PARADISE AWARD**
Issued by the Papua New Guinea Amateur Radio Society.

The purpose of this award is to encourage contacts with amateurs in the Independent State of Papua New Guinea, to advance the art of radio communication and to help foster international friendship and goodwill.

Applications for the award should be sent to —
The Awards Committee,
P.N.G. Amateur Radio Society,
P.O. Box 204,
Port Moresby, Papua New Guinea.

**RULES AND CONDITIONS**

The award is open to amateurs throughout the world, however for the purposes of the award two geographical areas are considered:

1. Oceania. The applicant must contact at least 7 of the licensed amateur stations in P29, with at least 5 of them located in different provinces.
2. All other areas: The applicant must contact at least 5 licensed amateur stations in P29, with at least 3 of them located in different provinces.

The National Capital District will be considered as a separate province for the award. The official Society station P29PNG, which is only activated on special occasions, may be substituted for any one province. Only contacts made after 16-9-1975 will be acceptable. Any band and mode may be used, special endorsements will be made for one band mode, etc. Certified log entries signed by two fellow amateurs must accompany the application, QSL cards are not required. The application should be accompanied by 10 IRCs, US$2.00 (or equivalent) to offset high postal charges.

An application should be in the following form:

**BIRD OF PARADISE AWARD**
**APPLICATION FORM**

I, the undersigned, apply to the Awards Committee of the Papua New Guinea Amateur Radio Society for the issue of the Bird of Paradise Award.
I agree to abide by the Rules and Conditions of the Award, and the ideals of amateur radio in which it is issued.
In support of my application I tender a certified list of P29 stations worked.

Signed: .....

Call sign: ..... .... .... .... .... .... .... ..... .....

Date: .....

CERTIFIED COPY OF STATION LOG OF:.....

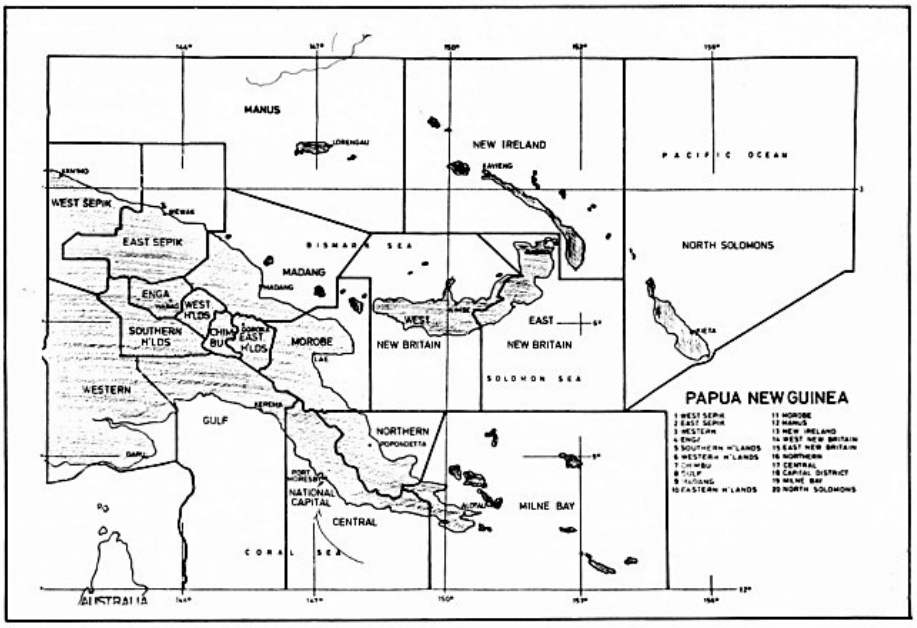
We certify that to the best of our knowledge this is a true and proper extract of the station log of the applicant.

Signed: ..... Call sign:.....

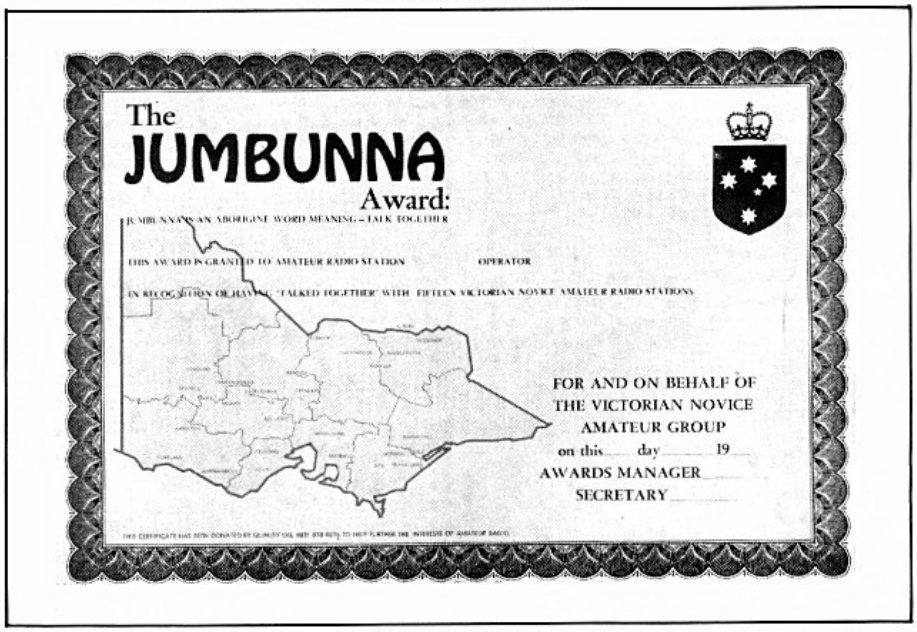
| | | | |
|---|---|---|---|
| Time | Date | Station | Band |
| Mode | Report | Province | |

**SYDNEY NOVICE AMATEUR GROUP AWARD (SNAG)**

1. The SNAG certificate will be awarded to any overseas station having worked and caring to claim 15 VK2N contacts since 1-1-1977.
2. These may have been worked on any Australian novice band and in any mode.
3. The station worked must have a VK2N prefix and a two letter suffix, i.e. VK2N??.
4. Endorsement stickers will be available upon further claim for 15 CW, 15 SSB, 15 80 metres, etc.
5. A list must accompany claims stating call signs, names, dates, times and frequencies of the 15 VK2N stations worked, and 7 IRCs to cover postage by airmail return. Provided these points are complied with, certificate issue is guaranteed.




**Bird of Paradise Provinces Map.**




**Jumbunna Award.**

6. Claims can be sent to any one of the following:
VK2NEC, Ern Cornwell, PO Box 90, Gordon, NSW 2072.
VK2NAR, John Robinson, PO Box 54, Turramurra NSW 2074.
VK2NDF, Gerry Fergus, PO Box 76, St. James, NSW 2000.

**JUMBUNNA AWARD**

Is available to amateurs outside of Australia who have made two-way contact with 15 VK3 novices.

It is designed to encourage overseas amateurs to make contact with novices and the certificate is awarded in appreciation of their effort.

To qualify, the following is required: 15 2 x SSB stations, or 10 CW/SSB SSB/CW, or 5 2 x CW.

The contact can be made on any novice band or mixture of bands.

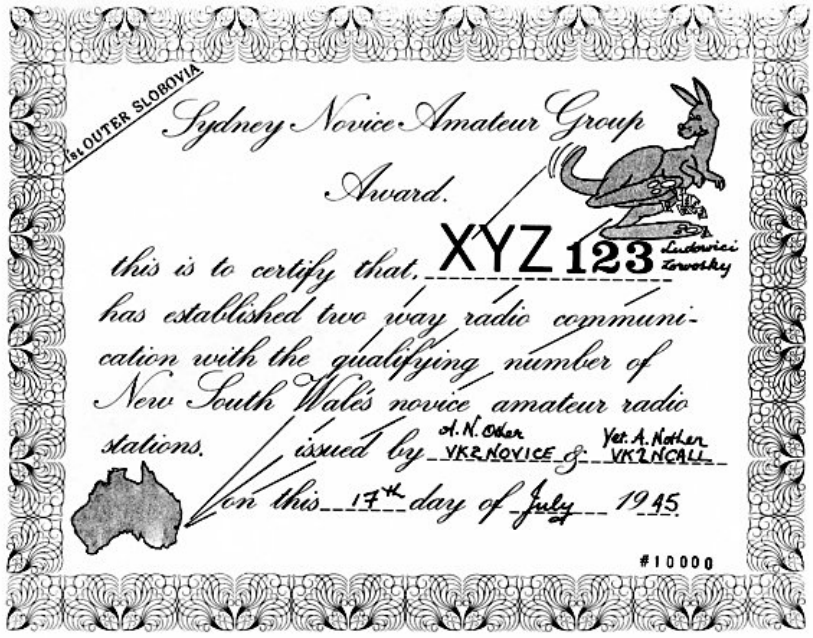
No QSLs are required — only a copy of the log, showing station worked, date, time, mode, QTH of novice station and the operator's name. Certified by one other amateur.

There is no charge for the award, just sufficient to cover postage (minimum of 6 IRCs or equivalent of $A1.50). Less, will forward surface mail.

Please advertise amongst your overseas amateur contacts.
Apply to:
VK3NAC, PO Box 130, Fawkner, Victoria 3060.
VK3NEY, PO Box 402, Werribee, Victoria 3030.
VK3NAH, PO Box 295, Bayswater, Victoria 3153.

**THE WELCOME STRANGER TEN-X CHAPTER (VK3)**

The Welcome Stranger Ten-X Chapter of the Ten-Ten International Net has been formed by the ten-metre enthusiasts within the Ballarat Amateur Radio Group — BARG. Ballarat is a city of 68,000 people which was founded on gold in the great gold-rush of the eighteen-fifties. The name "Welcome Stranger" is derived from the huge gold nugget, the largest ever found, which was discovered near here in 1869. It weighed 2,280 ounces. Another nugget, the "Welcome" nugget, was discovered right in Ballarat; it weighed 2,217 ounces. We felt that the name exactly expressed the ideals of amateur radio . . . Welcome, Stranger.




**SNAG Award.**

**FORMAT OF THE CHAPTER**

All members are allotted points as follows:
Charter Members: 3 points.
Honorary Members: 2 points.
First Starters: 2 points.
All others: 1 point.

In addition to the points earned for the various awards —

- **Welcome Stranger Certificate:** Entry requirements are ten points earned in contacts with Chapter members. Possession of this award entitles to holder to issue one point to contacts. One Charter member, or two local (VK3) members must be numbered in the contacts.
- **Gold City Award:** Requires fifty points. A station may be worked twice (only), providing the contacts are 24 hours or more apart. The points total. Worth one extra point to the holder for a total of two points.
- **Century Strike Award:** 100 points required; requirements similar to the Gold City Award, but three Charter members must be worked in the total. This award is worth an additional two points to the holder, for a possible total of four points.
- **Eureka VIP Award:** 250 points in contacts. Conditions as for other awards. Must contact five Charter members in the total. Worth an additional two points for a possible total of six points.

All amateurs in the Chapter must possess Ten-Ten numbers, and the maximum number of points that may be held by any member is nine.

**COST OF CERTIFICATES AND AWARDS**

"Welcome Stranger" Certificate $A2. "Gold City" and "Century Strike" Awards are $A1. All airmailed. The "Eureka VIP" Award price and layout are yet to be determined.

**NET TIME AND FREQUENCY**

Sundays (Aust.) at 1100 local (EAST), or 0100 GMT on 28.530 MHz.

**CORRESPONDENCE**

Address all correspondence to:
Leo McPherson VK3NIQ,
P.O. Box 247,
Ballarat East 3350,
Victoria, Australia.
73. Leo VK3NIQ. ■

# BOOK REVIEW

**AMATEUR RADIO TECHNIQUES (SIXTH EDITION)**
**By Pat Hawker G3VA**

Published by the Radio Society of Great Britain.

An alternative title for this book would be "The Experimenters Handbook" It is one of the finest collections of circuits, building blocks, and design ideas, and is invaluable for the inveterate amateur experimenter and constructor.

The author, Pat Hawker G3VA, has written the Technical Topics column for Radio Communication, the RSGB journal, for over 20 years. During this period a great deal of material has been gathered.

This edition is an update of the previous editions with 45 pages of the latest techniques and design ideas added.

The book is a great source of ideas for the experimenter and touches many aspects of our hobby.

Chapter titles are: Semi-conductors; Components and construction; Receiver topics; Oscillator topics; Transmitter topics; Audio and modulation; Power supplies; Aerial topics; Fault-finding and test units.

Recommended for the serious experimenter and those who just like to dream. Get your copy from Magpubs.

VK3AUI. ■

**TEST EQUIPMENT FOR THE RADIO AMATEUR (SECOND EDITION)**
**By H. L. Gibson G2BUP**

While there is no need for the radio amateur to own a shack full of test equipment, he cannot operate his station without access to some basic instruments. This book is for the home constructor — the person who not only saves dollars but has the satisfaction of achievement.

The range of test instruments and methods described cover most of the requirements of all Australian amateurs. Some simplified theory relating to the various techniques is given and constructional details are included for most instruments discussed. Every amateur will be interested in instruments such as the digital voltmeter, a digital frequency meter, and RF impedance bridge, an RLC bridge and the collection of signal generators.

Those who have read the first edition will note that the second edition has been considerably revised. The collection of useful reference is still to be found at the rear of the book.

The majority of these instruments are described in the RSGB Handbook, however this book is much less expensive and contains some more modern instruments.

I consider the book a worthwhile investment.

The review copy was supplied by the RSGB.

VK3AFW. ■

**OSCAR — AMATEUR RADIO SATELLITES**
**By S. Caramanolis**

This 192 page book has sold over 7,000 copies in its original German edition, although I cannot see why it should be so popular. The English language edition is distributed by the RSGB, who supplied the review copy. The book tends to be a theoretical text without the practical details which any newcomer to OSCAR finds so very necessary. I doubt that there is much in this book to appeal to many Australian amateurs.

Chapter titles are as follows: Planets and their orbits; Satellites and their orbits; Anatomy of a satellite; Satellites as relay stations; Fundamentals of telecommunication via satellites; Telemetry systems; Satellites of the OSCAR series; Operating with amateur satellites; Learning with AMSAT-OSCAR satellites.

Can 7,000 German readers be wrong? Perhaps not, but while some Australian amateurs will be happy to purchase this volume for its background theory and description of past OSCARS, most will want to pass it by.

VK3AFW. ■

**A GUIDE TO AMATEUR RADIO (17th EDITION)**
**By Pat Hawker G3VA**

This book is intended to assist the newcomer to this fascinating hobby, and to help him or her to obtain a transmitting licence. It also contains technical information and operating data of interest to all radio amateurs and listeners.

Whilst of a generally high standard some extra information would enable the newcomer to build some of the circuits which at present only act as illustrations.

Similarly some sections are related to the UK licensing scene and are not applicable locally.

Generally the book is well presented with useful theory and many practical tips and how to do it sections.

A useful book for the newcomer on the way to a licence to read in conjunction with the handbooks.

Review copy from Radio Society of Great Britain, 33 Doughty Street, London.

Available locally from Magpubs or your favourite bookshop.

VK3AUI. ■

# QSP

**MORE TRANSEQUATORIAL CONTACTS ON 144 MHz**

On April 10th Ray Cracknell ZE2JV worked 5B4WR over a distance of 5,978 km. Signals were 5B4WR, RST 219 with doppler flutter, and ZE2JV, RST 227. 5B4WR was also heard RST 529 by ZE2JE.

On April 12th ZE2JV worked SV1AB over a distance of 6,275 km. Signals were ZE2JV, RST 529, and SV1AB, RST 219.

During the period 8th to 20th April at least one station heard transequatorial signals on each day.

ZE2JV has a beacon on 144.118 MHz.

From Radio Communication June 1978.

**NEW PREFIX**

The Canadian DOC is reported as having changed the prefix call for all amateurs in the Yukon from VE8 to VY1 from 25th April. ■

# YAESU from DICK SMITH

WHEN YOU REALLY CONSIDER THE ALTERNATIVES – THERE ARE NONE!

## Fabulous FRG-7 Communications Receiver

* 0.5 to 30MHz continuous reception
* Wadley loop circuitry for stability
* Mains or 12 volt operation – portable.
* BFO for sideband or CW reception
* 0.7uV sensitivity (for 10dB signal/noise)
* 2 IC's, 22 transistors and 16 diodes
* Comes with full instructions plus guide

**EXCLUSIVE!**
With every FRG-7 from Dick Smith or dealers, you receive this exclusive 6 page guide to short wave listening – written by Arthur Cushen, MBE – world famous short-wave correspondent and broadcaster.

CAT. D-2850

only $350

Terms available

**See the review in MAY 1978 E.A.**

**NOW: A short wave antenna kit for the FRG-7 receiver (and any other shortwave receiver . . .)**

Designed specifically for Dick by a short-wave expert, this antenna kit needs no soldering, is complete and ready to assemble and has full instructions. Get the most out of your receiver with a good antenna.

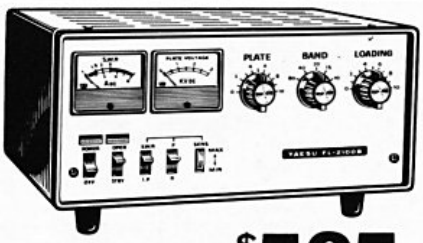
$9.50

VALUE! Cat K-3490



## FT101E $895

The most popular HF rig **in the world!** The FT-101E offers full 160 through 10 metre operation on CW, SSB & AM. Rated at 260 watts PEP – with a receiver more sensitive and with less IM distortion than the TS-520S (see our ad last month for comparison). 240V and 12V supplies built in. Join the Yaesu family – soon. Cat D-2860




## FL2100 $585

Here it is: the magnificent FL-2100B heavy duty linear amplifier for amateurs. It covers the 80 through 10 metre amateur bands, and is conservatively rated at 1.2kW. Offers the punch to get through when the QRM & QRN are trying their hardest to stop you! Can be used with any HF transceiver rated at 50W PEP or more. Cat D-2546


## FT901D $1375

Tomorrow's transceiver – today. It really is the ham's dream: full HF coverage (160 – 10 metres) on **all** modes (yes, even FM and FSK). Gives digital AND analogue readout, has rugged 6146B finals (90% solid state) This beautiful unit has features others can only dream of! Cat D-2854

Optional memory unit: Cat D-2858 $149.50
Optional DC/DC conv.: Cat D-2856 $75.00

## SAVE $100 ON FT301


**FP301: Matching Power Supply**
Heavy duty 13.5V @ 25A regulated supply to match the FT-301, FT-7, etc (also an ideal workshop supply). Cat. D-2872.
STILL ONLY $170.00

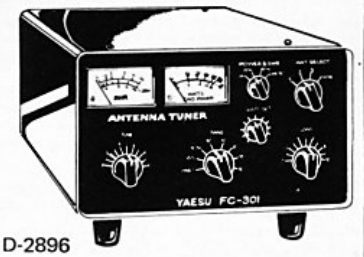
**Factory saving passed on to YOU!** Yes – was $995 last shipment . . . All solid state (inc. finals), 200W PEP on all HF amateur bands with AM, CW, SSB & FSK. 12V operation (ideal for mobile or base) with RF speech processor & marker, effective noise blanker. **Cat D-2870**

$895

**Easy terms available to approved applicants on all purchases over $111**

## NEW!

**YAESU ANTENNA TUNER FC301**




Cat D-2896

* Huge 500 watt rating
* Inbuilt power meter
* Inbuilt SWR meter
* Inbuilt 4 position co-ax switch
* 160 – 10 metres & direct

Special introductory price: $249

## STOP PRESS!

**HEAVY DUTY CO-AX RELAY NOW REDUCED!**

Yes! Now you can save over 10% on this quality co-ax relay. Save the high cost of an extra run of co-ax. Make instant band switches or antenna comparisons. Handles 2500W PEP to 60MHz, 1500W PEP to 500MHz. 52 ohm impedance with an insertion loss of less than 0.1dB

~~$49.50~~

$44.50

Cat D-5210

# AT LAST! THE YAESU FRG—7000


*Yes! It's been a long time coming — but the wait was well and truly worth it . . . . The Yaesu FRG-7000 offers the serious SWL the ultimate in a communications receiver.*

- Digital frequency readout for accuracy (and allow absolute certainty in returning to a previously logged station)
- Full band coverage — from 0.25MHz (yes, 0.25) up to 29.9MHz — with provision for AM, SSB and CW reception
- Digital clock built-in displays local OR GMT (at the flick of a switch) plus allows the receiver to be turned on at any time (eg for recording when you're not there!)
- Wadley Loop circuitry for rock-solid stability plus FET front end for sensitivity
- Operates from 100 to 240V AC 50/60Hz (easy modification allows portable 12V use)

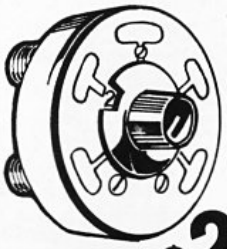
**$695**

Cat D-2848

Terms are available to approved customers (personal shoppers only) on any item priced $111 or more, from 10% deposit and easy payments. Mail order customers: we'll send your purchase anywhere in Australia for $5.00 extra — by Comet.

## NEW! High Quality 5 position co-ax switch

- Grounds all unused inputs
- 52 ohm impedance
- 2000W SSB
- Low SWR and crosstalk
- Fitted with a UHF connector



Why take chances with your finals? A proper co-ax switch also reduces TVI, increases efficiency. Insertion loss is negligible, VSWR less than 1.2:1. Up to 150MHz.

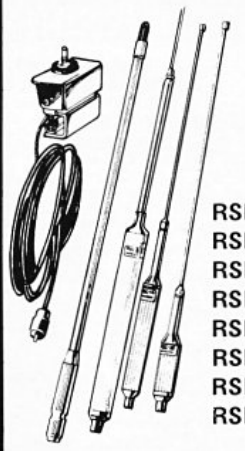
Cat. D-5208 **$29.50**

## Why not build your whole station around YAESU?

The QTR24 World Clock. Work out at a glance what the time is in any time zone in the world. Every ham should have one.
Cat X-1054 .. .. .. .$33.00

YD- 844A desk microphone. 500 ohm/50k switch makes this ideal for all YAESU transceivers. Complete your base station with a YAESU microphone.
Cat. C-1116 . .$44.50

## NEW YAESU ANTENNAS



Here's the brilliant Yaesu mobile antenna system for HF and VHF. You buy the gutter mount base and 2m stub, and you're on the air on 2m immediately. As you want the HF bands, simply buy that band resonator/antenna whip and screw it into the 2m stub. You only have to buy the whips you want for the bands you want. Now there's no excuse to stay base . . . go mobile with Yaesu!

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| RSE-M-2 | gutter mount | D4100 | $32.50 |
| RSE-2A | 2M stub | D4102 | $10.95 |
| RSL-145 | 6M/2M ant | D4104 | $23.95 |
| RSL-3.5 | 80M antenna | D4110 | $19.95 |
| RSL-7 | 40M antenna | D4112 | $19.95 |
| RSL-14 | 20M antenna | D4114 | $20.95 |
| RSL-21 | 15M antenna | D4116 | $20.95 |
| RSL-28 | 10M antenna | D4118 | $20.95 |

**EASY TERMS AVAILABLE TO APPROVED APPLICANTS ON ALL ITEMS PRICED $111 OR MORE.**

**$375**

### FT-227R — FULL 2M RIG

As reviewed in the March issue of Electronics Australia. Full 2 metre, synthesised FM unit with memory. Ideal for repeaters and duplex operation. Best value rig available today!
Cat D-2890

**$525**

### YC-500S — 500MHz COUNTER

Fabulous professional quality — 500MHz counter. As reviewed in April E.A. 240V or 12V operation. And it's even cheaper if you have a sales tax exemption!
Cat D-2892

**$539**

### FT-7 — NEW HF MOBILE RIG

Here it is! The new HF solid state 80 — 10 metre mobile transceiver. It's ideal for novice use, too. The best mobile unit going!
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**$239**

### FL-110 — 200W LINEAR

Use the FT-7 or FT-301S as a full-power unit with the 200W linear amplifier. One knob band switching, no tuning required.
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**Dick has an enormous range of amateur equipment, and it's growing daily! Call in today and have a look around. You're under no obligation! Dick Smith Electronics — the professional amateur suppliers.**

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SY-1 SYSTEM ONE™ TRIBANDER

**Monoband performance from a 3 band beam . . .**

That's the Wilson System One and System Two HF beams for twenty, fifteen and ten metres. Five elements (four on system two) with an SWR of less than 1.5:1 on all bands. Maximum front to back ratio, high gain (10dB & 8.5dB resp.) . . .
The features are endless. But it's performance that counts — and you'll DX to places that haven't been invented yet! For REAL performance, you need Wilson tri-banders.

**NOW: Save around 20% on either beam — Dick's bulk buying prices mean massive savings for you. System One now $75 off!!! System Two now $51 off !!!**
**Get the benefit of these fabulous savings now: call in to your nearest Dick Smith store.**

### SYSTEM ONE BEAM

* 5 element ~~$425~~
* 10dB gain!
* 8m boom
* 8m longest element
* 5.6m turning radius

**$350** Cat D-4330

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* 4 element ~~$320~~
* 8.5dB gain
* 5.6m boom
* 8m longest element
* 5m turning radius

**$269** Cat D-4332

## Wilson Tetra Tower

Dick Smith really is the complete amateur radio store: Now you can even buy your tower from us!
Yes: the Wilson Tetra Tower system — there's nothing quite like it anywhere else . . .
This tower comes in sections — 3.5m long (assembled). Each section comes in a cardboard box less than 1m long and weighs less than 25lbs. The point is this: You buy only as many sections as you want — and when you want them. For example, 4 sections give you a 14m (45') tower — and you can spread your purchase over as long a period as you want. No need to buy a complete tower in one hit! And, if you decide later that you want more height, it is so very easy to add it — up to about 80' maximum. The system is extremely strong — with suitable guying (every 2 sections) it will support the system one beam at 68'.
We're so enthusiastic about 'Tetra Tower' — we know you will be when you see it. Compare conventional masts . . . you'll want the Tetra Tower.

Cat D-4338

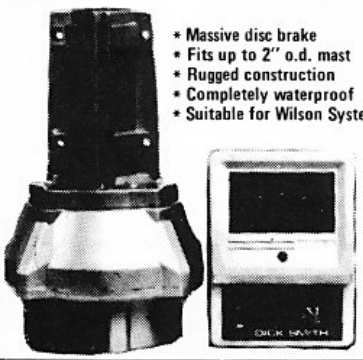
* Tested to accept in excess of 4000lbs vertical loading
* Strong, heavy wall 1" O.D. aluminium tubing.
* NO gin pole needed to erect
* Attractive, unique design
* Clear, step-by-step instructions for simple assembly
* Maximum loading 10 sq. ft. of antenna at 68ft height

**$59.50** PER SECTION

## DICK SMITH ELECTRONICS: WILSON—APPOINTED MASTER DISTRIBUTORS

## New FULLY LEGAL ANTENNA ROTATOR

Handles most beams with ease. Supplied with fully approved power supply and large, easy-to-read control box.



* Massive disc brake
* Fits up to 2" o.d. mast
* Rugged construction
* Completely waterproof
* Suitable for Wilson System

COMPLETE UNIT — Rotator, control unit and approved power supply:
**$135.00**

OUTSTANDING BARGAIN

Rotator & control box without power supply: Cat D-5000 . . . . . $119.00
Power supply only: Cat D-5002 . . . . . $16.00
Additional mast clamps (if required) Cat D-5001 . . . . . $12.50

## FABULOUS SCOOP BUY!

**150MHz and 460MHz 1/4 wave verticals — complete units including weatherproof co-axial base fitting.**

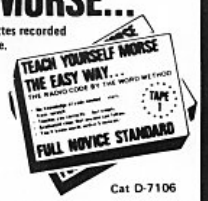
**THESE MUST BE THE BARGAIN OF THE YEAR!**

150MHz version:
~~$10.50~~ **$4.00**
SAVE $6.50
Cat D-4020

460MHz version:
~~$9.50~~ **$3.80**
SAVE $5.70
Cat D-4023

## LEARN MORSE...

Here's value: two cassettes recorded with easy-to-learn Morse. Starts off simple, goes to full novice standard. Completely Aural — no printed matter to slow you down!

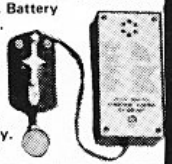



**$7.90** Cat D-7106

## Morse trainer

Kit contains all parts to build this practice oscillator. Battery operated, ideal project. Cat K-3472

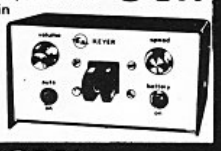
Key Extra. **$5.90**



BUILT-UP VERSION: As pictured, but no key.
Cat D-7110 . . . . $7.90

## KEYER KIT $37.50

Complete kit inc. paddle. Case is undrilled, plain panels See E.A. March '78. Cat K-3470.



PADDLE only: Cat D-7103 . . . . . $17.50

## MULTI Q-16 2m TRANSCEIVER

2 special priority positions to monitor your favourite cahnnels • Large 23 ch. capacity • Provision for external VFO

~~$228~~
NOW REDUCED TO ONLY **169.50**
Cat D-3009

## XXXX SPECIAL APOLLO LINEAR

was ~~$299.50~~ now **$199.50**

**$100 OFF**

* Full 200W SSB *40—10M
* In-built RF pre-amp
* Only 3Wdrive
* RF actuated — no messy control wires!

Cat D-2544

Originally $229.50 Save $100 !
NOW REDUCED TO ONLY $199.50
Don't miss out — Stock strictly limited.

## Banish TVI FOREVER!

**The ULTIMATE in low-pass filters!**

Precision built, 4 section filter. Massive power rating — 5000W PEP on SSB. Maximum attenuation is on TV channel 2 — 75dB. Insertion loss is less than 0.5 dB, has SO-239 connectors. 52 ohms.

WHY TAKE CHANCES?
Cat D-7086
**$37.50**

## OOPS!

Our July A.R. advertisement carried a statement that the Kenwood TR-2200 2 metre portable was 'the only 2 metre portable now on the market'. Unfortunately, the word 'Kenwood' was inadvertantly omitted from the text, which should have read ' the only Kenwood 2m portable now on the market'

We apologise for this omission and any inconvenience caused.

* SEE OUR OTHER DOUBLE ADVERT. FOR FULL LISTS OF STORES AND DEALERS

# DICK SMITH ELECTRONICS

# LETTERS TO THE EDITOR

**Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.**

The Editor,
Dear Sir,

I was quite amazed to find that amongst a number of proposals for WARC 79 made at a meeting earlier this year of representatives from a number of international broadcasting organizations and telecommunications authorities, was the "Removal of amateur operators from the 41 metre band" (ETJ July 1978, page 120). Apparently this would refer to the section from 7.1 to 7.15 MHz. However, one feels sure that if this section goes, the rest of the band does not stand much chance of prolonged survival.

It would appear that the wrong side of the coin has been tossed. The long standing problem of getting the broadcasting station Intruders out of the 40 metre amateur band has been ignored.

What chance does the amateur fraternity stand in a number of western countries, including Australia, think the other way?

Yours faithfully,
Graham Mutton L70107,
85 Finlay Street, Bridgewater, Tas. 7401. ■

19 Harley Street,
Dingley 3172.
19-7-78.

**CHANNEL 5A**

The Editor,
Dear Sir,

Following the events of the past few weeks on the Channel 5A issue, and not having a licence to transmit on amateur frequencies as yet, I felt that I had to put pen to paper to speak to amateur operators in general.

I have a small commercial receiver on which I am able to listen to the 2m channel 2 repeater, and it amazes me the complacency of at least 50 per cent of the operators I hear. They are already talking of TVI filter construction, and transverters to 70 cm — 432 MHz.

Are amateurs willing to give up their allocated frequencies to anyone who expresses a desire for them?

You have lost 11m to CB (and already CBers are moving into 10m trying to look for clean air), 6m to Channel 0, and now that there is a real threat to 2m, all I have heard is "When we lose 2m . . ."

It was stated on air one day that there has been test transmissions of 5A in Adelaide, and the only reaction I have heard is "Have they got official permission to do that?".

I would have thought that one of the primary purposes of running test transmissions is to see what, if any, interference may be experienced. Whether they have "official permission" or not, now is the time to show them the extent of the interference they will get. If they cannot pick up their picture due to this interference, what is the purpose of further testing on that frequency.

What will happen to the network of 2m repeaters throughout Australia? Were they installed by people who had nothing better to do with their time or money?

Is VK3BX going to drive to the top of Mt. Dandenong and turn off the repeater and then go home without a backward glance?

What frequency are you going to hand over next — 15m?

The WIA must, of course, go through official channels to stop the allocation of Channel 5A, and seem to be pinning their hopes on WARC 79 if their submissions to the P. and T. Department fail, but let's face it, decisions made in Geneva are not binding, i.e., Channel 0, and if it is politically wise, 5A will go ahead, the amateur vote at the polling booth is infinitesimal compared to the Ethnic vote.

The CBers, rightly or wrongly, fought for what they wanted, and proved that it could be done.

It is time for all amateurs to get off their collective rear ends and showed a united front to fight for what they want.

Surely every amateur can afford 10 minutes and 20 cents to sign the protest letter and send it to the appropriate place, and pick up their microphones and continue transmitting on 2m come what may.

Yours sincerely,
Mrs. M. A. Beere L31053. ■

Jack Trembath VK5JT
80 Gloucester Avenue, Belair 5052
25th July, 1978

**"SLOW MORSE PLEA"**

The Editor,
Dear Sir,

I am writing this letter in reference to the interference that is taking place occasionally to the "Morse Practice"' session from the SA Division of the WIA each evening of the week. It is disgusting that some amateurs continue to transmit and interfere with this very important service which the Institute provides.

**TO THOSE STATIONS THAT CONTINUE TO MAR THIS SERVICE**

My words cannot emphasise in our journal to the type of person or persons they are that deprive others from obtaining the knowledge and skills that these persons have already obtained, most probably from these sessions. I might add that this service is an unpaid one and that the persons involved give freely of their time, labour and means.

The Postal and Telecommunications Department regulations state: "That an operator should listen before he commences to transmit."

Some people who use this service probably have receiving equipment that is not quite so sophiscated as the fully fledged operator, so please give these people a go. After all, to those persons who are the guilty ones, remember you yourself learnt by a similar means, and it behoves upon you not to be selfish with this grand hobby, let the amateur spirit predominate.

I hope that we don't have to enforce the regulation regarding this interference. This session has the sanction of the Postal and Telecommunications Department, WIA and affiliated bodies.

Chaps, listen before you use the frequency at all times, and assure youself that you are not going to deprive someone of the privilege of learning from this service.

Yours faithfully,

Jack Trembath VK5JT, R. Stone VK5PB, Ian Campbell VK5LI, E. Jones VK5AEJ, J. Foster VK5LU, R. Tester VK5MV, W. Hienrich VK5HR.

**(Editor's Note: It is respectfully suggested that non-participating operators leave at least 10 kHz clear either side of the slow morse frequency to enable listeners to copy the sessions with relative ease.)** ■

64 Madison Drive,
Adamstown Heights, NSW 2289.

The Editor,
Dear Sir,

In reply to VK2JK's article entitled "Sugar Coated Oscar", I would like to say that there is an easier way to track Oscars 7 and 8 that is well within the reach of every amateur.

My easier solution is to send a letter to the ARRL HQ in Newington, CT 06111, USA, and ask them for an ARRL Oscarlocator. It costs a lousy $1 (US funds) or an irksome 4 IRCs HI HI. This little gadget will tell you where Oscar is and when and even a crude indication of the elevation at a particular time. (And just before I move on please specify which Oscar you want to track because the Locator is different for each satellite.)

Now when you receive your Oscarlocator in your hot little hands you'll see that it is designed for the Northern Hemisphere, quite true, and then you'll think ". . . who's this idiot 2BHR trying to kid . . ." and my reply is ". . . No one . . ." OK, it is for the Northern Hemisphere, but with a little ingenuity it can be used for us VKs. Here's how!

1. Ignore the map under the grid.
2. Find your QTH in terms of latitude and longitude.
3. Place the QTH/Rangefinder over your QTH as described in the instructions (they come with Locator).
4. Place the orbit finder right side up on the map and attach.
5. (Now comes the tricky part.) You must now calculate the DESCENDING NODE EQX which you must do for every day that you want to listen. Once you have done this you use the Locator as if you lived in the Northern Hemisphere (as described in supplied instructions). Now to the "nitty-gritty".

   To find the descending node EQX from the ASCENDING NODE EQX (which is supplied in AR) for:—

   TIME = UTC (for ascending node EQX) + ½ period.

   LONG. = Long (for ascending node EQX) + 180 + ½ progression.
6. Now you'll be saying ". . . what sort of gobbledegook is that?"

   Now I'll give an example:—

   Take August 1st for Oscar 8 for example:—

   | Date | Orbit | Z (UTC) | Degrees W. |
   |---|---|---|---|
   | 1 | 2069A | 0059 | 54 |

   TIME = 0059 + ½ period
   0059 + 51 mins. approx.
   0150

   LONG. = 54 + 180 + 13
   54 + 193
   247 degrees

   So the descending node EQX is:—

   TIME (Z, UTC) = 150

   LONG. (West) = 247.

Now that's all there is to it; easily done? Now you use the Oscarlocator as you would for the Northern Hemisphere with this new EQX data. My Locator works fine and I worked out this system myself, but with a little help from ARRL, who supplied me with another method which was INCORRECT. So if they send you info that resembles mine try it, but it may not work (it might if they give you different info). Mine does though, and I can predict the Oscar's fairly accurately, and if you think the system is too hard . . . THINK AGAIN, I'm 15 and I thought it out, so you should be able to use it. Don't despair at first if you are having a slow time at calculaitng the orbits, with practice you'll speed up — I did!

If you want more info on how to use the Oscarlocator write to me and I'll gladly help out!

Now, to get the record straight. I don't mean to say that VK2JK's article is rubbish; in fact, it is one of the best I have seen!!!

Yours faithfully,
B. Roberts VK2BHR. ■

83 Bindi Street,
Glenroy, Vic. 3046.
9th July, 1978.

The Editor,
Dear Sir,

I do not want to start a CW versus SSB war, but I would like to point out that the current 1977 Australian Callbook has some misprints on page 5. In the "Band Plans — International and Local", the 80 metre and 40 metre CW only allocations are incorrect. They should be "80m — 3.5 — 3.55", and "40m — 7.0 — 7.05". I know that for local use the CW only allocation is often regarded as 7.0 — 7.04, but this is a purely local arrangement. The international "Gentleman's Agreement" allocations as printed in the callbook are quite incorrect.

I know that CW is obsolete and dead; I was told this when I first started to learn the code in 1947; nevertheless, there are a large number of stations who apparently do not know that CW is dead, for they persist in using it. Many of these stations run low power, and are quite severely inconvenienced when high power SSB stations suddenly appear on the frequency.

If we accept that the 80 metre CW band is only the first 35 kHz, then novices have only the first 10 kHz of their allocation for CW; and a surprising number of novices do use the CW mode. To make matters worse, a VK2 novice SSB net has made its home on 3530 kHz during the evening, and causes considerable interference to CW operations, splitting the novice 10 kHz neatly in two. The Sunday morning CW net on 40 metres has also been bothered by SSB on 7030 kHz.

As I have said, I do not want to start a CW versus SSB war; one of our hobby's fascinations is the variety it offers. I am also well aware that the Australian licence makes no mention of exclusive SSB or CW bands, but the international gentlemen's agreement has worked well till now. You do not find CW stations invading the SSB bands — come on now, SSB fans, and give us a go, too!

Yours faithfully,
John H. Smith VK3IQ. ■

# THE FACT SYMPOSIUM

From a report of the symposium held in Sydney over the week-end 20-21 May comes the following remarks (the entire report was published in the July/August issue of "Forward Bias" — VK1 Division's journal):—

". . . The first speaker was Mr. David Large, an Executive officer from the Policy Division of the P. and T. Department, Canberra. He stated that the Minister and the Department have received a lot of reports indicating that many of the present radio amateurs did not come up to the standard or definition, as contained in the handbook. Their discussions on the air were rarely of a technical nature or experimental. Many bought commercial equipment, which they had to rely on agents to fix! Also our operating procedures were poor.

**Third party traffic would not be tolerated,** as this could affect the revenue of Telecom on trunk circuits, and OTC.

Also, AR magazine appears to be mainly about contest numbers, reviews of commercial equipment, and social columns.

Mr. Large went on to mention the joint committee of the WIA and P and T. Department, which was recently set up and had its first meeting, so at least amateurs now have some say in the decision and policy areas.

Mr. Large was taken to task on the above comments by many of the amateurs present, including Alan VK3BBM, who pointed out that only the last half of AR could have been looked at to make this particular comment. Also that the listening on the amateur bands must have been of a narrow selective nature and that many amateurs spend more time building and testing equipment on the bench than chatting on the air.

However it was clear to all present (about eighty) that we must improve our operating procedures and use of the bands to retain our status." ■

# IARU NEWS

**IARU FIRST RADIOSPORT CHAMPIONSHIP**
Certificates for this were won by and forwarded to VK3BHN and VK6IC, both in the 1977 phone section.

The 1978 Championship was held on 8th-9th July 1978. The 1977 Championship was excellently supported with over 1,500 individual entries from nearly every IARU Society.

**IARU REGION 1 CONFERENCE**
This (the 11th triennial) was held in Hungary from 24th to 28th April and was attended (by delegates or proxies) by 36 of the 46 IARU Region 1 Amateur Societies.

The Conference was addressed by Mr. Richard E. Butler, Deputy Secretary-General of the ITU. Items from his address included — "The choice of venue was particularly appropriate, being situated in a country which is doing so much to encourage radio amateur and to provide means for practical training and help. The existence of a strong national radio amateur society can be an invaluable help in such objectives (programmes for developing countries)." He recalled the definition of the amateur service in the Radio Regs and pointed out the importance of the aspect of self-training.

It was pointed out by Mr. Butler that the ITU will request formal proposals from administrations for WARC during September 1978. Written proposals will have to be submitted by administrations by January 1979 if they are to be circulated before the WARC. He also referred to the work of the CCIR (the SPM is in October), which will be preparing documents which could be used as the technical bases for WARC 79. National Societies were urged to submit appropriate papers to the CCIR via their national administrations. Two titles suggested were "Preferred bands for the Amateur Service" and "Sharing criteria in Amateur Service".

**ARTICLE 41**
In this Conference there was a long discussion concerning possible changes to Article 41 of the Radio Regs and it was unanimously agreed that the IARU Region 1 policy should be one of no change to the present terms of the Article. (Article 41 was described in AR for May 1976, page 20.)

**TELECOM 79**
Probably the world's largest telecommunications exhibit of the decade will take place in Geneva at the time that WARC 79 opens. The IARU has a stand. During the week preceding the opening of WARC 79 there is to be a technical forum extending over several days and on the afternoon of 22nd September, 1979, the IARU will be presenting an address on the amateur service which will reach delegates and engineers in Geneva at that time.

**50-54 MHz BAND**
At a joint meeting of all the Scandinavian radio amateur societies on 1-2 April in Oslo the request for the 50-54 MHz band was considered to be especially important. At the IARU Regional 1 Conference a report by various VHF managers indicated the UK, France, Germany, Eire, Sweden and Norway administrations would not be against granting part of this band to amateurs providing there is no opposition from other members of CEPT and nothing anyway prior to WARC 79. Netherlands, Italy and Denmark administrations, however, are said to be resolutely against this.

**YI1BGD**
This is the club station of the Scientific Welfare Centre in Baghdad and was established by the Yugoslavian Amateur Radio Society after representations to the Government. It operates only on the 14 MHz band.

**CALL SIGNS**
The call sign series J4A-J4Z has been allocated to Greece and J5A-J5Z to the Republic of Guinea-Bissau, both "provisional".

**NIGERIA**
The only amateur stations recognised by the Government are 5N2AAJ, 5N2AAE, 5N2AAK, 5NTAAV and 5N2NAS (the Amateur Society's club station).

**2m TEP**
On 8th and 10th April, 1978, ZE2JV worked Cyprus (5B4AZ and 5B4WR) on 144 MHz, a distance of 5,850 km. On 11th April ZS6LN heard the 5B4CY 2m beacon — 6,340 km, and on 12th April ZE2JV worked SV1AB on 2m, a distance of 6,275 km.

**6m OPENINGS**
Project TESSA (15th February to 15th April, 1978) recorded many new records during the spring equinox. The French 50 MHz beacon was heard by ZS6PW 8,800 km to the south and also by ZS3AK. The ZS6PW beacon on 50 MHz was received by SV1AB (6,934 km) and G4BPY (91,185 km). The Cyprus beacon 5B4CY is on 50.5 MHz nominal.

**10m BEACONS**
Operational 28 MHz beacons are listed as follows:—

| MHz | Hours | |
|---|---|---|
| 28.202.5 | 05.00-06.00Z<br>15.00-16.00Z | 9J2BBB, Lusaka |
| 28.205 | | DL0IGI, W. Germany |
| 28.207.5 | | N4RD, Florida |
| 28.210 | | 3B8MS, Mauritius |
| 28.215 | | GB3SX, Crowborough |
| 28.220 | | 5B4CY, Limassol |
| 28.225 | | VE3TEN, Ottawa |
| 28.230 | | ZL2MHF, Mt. Climie |
| 28.235 | | VP8BA, Bermuda |
| 28.245 | | A9XC, Bahrain |
| (28.250 — Oct. 78 | | KC4, Palmer Stn.) |

**6m BEACONS**
The following overseas beacons are reported: 50.025 MHz 6Y5RC in Jamaica, 50.05 WA1EXN in Maine, 50.078 TI2NA San Jose, 50.087 WA6MH San Diego, 50.088 VE1SIX New Brunswick, 50.090 WA6JRA Orange, 50.092 W7KMA Oregon, 50.098 KG6JIH Guam, 50.100 ZK1AA Cook Is., 50.104 FX3VHF Lannian and KH6EQI Pearl Hbr., 50.110 HL9WI Seoul, 52.110 HL9WI Seoul, 52.500 3D2AA Fiji, 52.500 ZL2VHF Palmerston Nth., 53.

**GENERAL**
The Norsk RRL celebrates its 50th anniversary this year. Thanks for almost all the above to IARU R1 News. ■

# PROJECT ASERT

How can radio amateurs assist in furthering science with greater knowledge of VHF/UHF propagation modes? Broad correlations with weather conditions and solar activity are known but much remains to be understood, states Mr. K. G. McCracken

Mr. McCracken proposes that radio amateurs should support Project Asert — "Amateur Service Experiment in Radio Transmission" — to record and report on such occurrences as the ephemeral nature of sporadic E openings, the heterogenity of chordal hop openings and the physical nature of type II TEP.

What is needed, he says, are simultaneous observations at many widely-spaced locations which, because of the economy drive, cannot adequately be carried out by scientific institutions.

This is the gap which amateurs are ideally qualified to fill. The Executive of the WIA is pleased to support such an investigation since it accords most perfectly with the aims and objects of the amateur service.

Mr. McCracken comments that if such a venue is to possess scientific validity, co-ordination (such as could be provided by the WIA) coupled with technical and scientific information of a professional standard are mandatory requirements.

Two separate classes of experiments are required —

(a) A statistical study of VHF/UHF transmission paths conducted by a co-ordinated group of experimenters throughout Australia; and

(b) Experiments by individual amateurs to distinguish between the various propagation modes and to determine if a path is open.

The point is made that there is urgency in getting this project under way — next year could be too late because of the solar cycle.

Details of the experiments and organisation involved are too lengthy to print here. Anyone seriously interested is urged to ask for a copy of the paper on the subject as prepared by Mr. McCracken.

Ask **NOW** for your copy from: Chairman, VHFAC (Project Asert), C/O Box 150, Toorak, Vic. 3142. ■

# ALARA

AUSTRALIAN LADIES' AMATEUR RADIO ASSOCIATION

This month the series of articles on YLs of Australia is interrupted to announce two major items.

The first is the successful completion of ALARA's The first is the successful completion of LARA's third birthday celebrations, which, at time of writing, have just taken place. In Melbourne this auspicious occasion was celebrated with a film night, followed by a dinner party; with, of course, a birthday cake and candles. This year no photographs were taken of the Ceremonial Cake Cutter in back view (for which the aforementioned CCC is grateful. A motorcade from theatre to party resulted in two well-known fox hunters arriving very promptly, guided by a truly ALARA map, in what is now becoming a tradition. If this reference seems obscure, all will be made clear in the Newsletter which will be out soon.

Now for the second piece of news. LARA has changed its name to become the Australian Ladies' Amateur Radio Association, or ALARA. A referendum of members was taken and the consensus of opinion was that there should be a national identification in the name of the Association, so that members competing in international YL competitions can be identified easily.

Another development at a recent meeting was the suggestion that ALARA members sponsor YLs from other countries in joining ALARA. This is a reciprocal arrangement with these ALARA YLs becoming members of overseas YL clubs such as the YLRL, CLARA and WARO in return.

Now that the Association's name has been decided, it has become possible to design a badge for club members and we proudly announce progress in this direction. More news in your next Newsletter (for which, as always, letters and articles are gratefully welcomed by the excessively hard-working editor — Norma VK3AYL).

33s from ALARA.
Kate Duncan. ■



# 20 YEARS AGO

*Ron Fisher, VK3OM*

**SEPTEMBER 1958**

Realism in Signal Reporting. The Editorial page was really trying to sort out that old question of just how strong is a strong signal. Perhaps what we need today is more realism in reporting signals that are below the accepted standard in terms of distortion, sideband suppression, splatter, etc. I often wonder if the average amateur knows just what to look for.

A wide variety of technical articles appeared in September 1958 AR. With everyone changing over to Pi-coupled finals an article on how to tune your Pi-Network was timely. This one was reprinted from QST.

Crystals Substitute Mechanical Filter. HB9EU had some neat ideas on using crystals at both 400 kHz and 1600 kHz to produce a flat top response for use in SSB transmitters and receivers.

Sid Clark VK3ASC expounded on time delay circuits for Mercury Vapour Rectifiers.

Part seven of Amateur Television discussed tests and measurements. Subjects included scan linearity, frequency response, low frequency phase response, system gamma and pulse duration.

Meet the other Amateur and His Station featured the late Arnold Holst VK3OH.

Equipment included the usual Geloso VFO driving parallel 6146s. Receivers were a Marconi CR100 and Eddystone 680X.

A short article, reprinted from the RSGB Bulletin described an "Audible Tuner", to enable blind amateurs to tune up their transmitters. It would be easy to adapt to solid state design.

DX notes for the month include details of a forthcoming expedition to Clipperton Island. Wonder if it caused the pile-ups that the Clipperton expedition of a few months ago produced? ■

# HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

**FOR SALE**

**FV200 External VFO** for FT200, $75, ONO. VK3PR, QTHR. Ph. (056) 62 2711.

**TR7200G Portable 2m Txcr.,** as new, with nicads, charger, carrying case, manual, etc. R 3, 8, simp. 40, $200; leader GDO, as new, $80. VK2BJP, QTHR. Ph. (060) 25 4580 A.H., (060) 24 3929 Bus.

**Eddystone 888A Rx.,** 160m to 10m, $150; Eddystone 770R Rx., 19 MHz to 165 MHz, $150; Eddystone 770U Rx, 150 MHz to 500 Mhz, $150; Geloso AM Tx G-222, two, $70 each; Vinten BTR10R/A, 50W, 6 ch., no xtals, $80; Vinten MTR21, 5 ch., $50; Creed 7B teleprinter with 2-speed governor and N3 keyboard, $120; ST-6 demod., AFSK generator and interface, $250. Buyer collect. VK3ANG, QTHR. Ph. (03) 602 1333, Ext. 544 Bus.

**Swan 500** with AC pack, 500W, orig. and ex., $500; Heath HW32, 200W, 20m only with HB AC pack, good performer, exc. mobile with its one knob tune up, clean, $275; Acitron heavy duty DC power supply with cable for FT200, also suits Swan and Heath, etc., as new, $95; Hammarlund HQ170 super Rx, 160 to 6m, 18 tubes, with every conceivable feature, like new, $290; Europa 200W 144 MHz transverter, plugs straight into FT100, etc., new, $195; all with instruction manuals and circuits; valves, 4 pin, to octal, $1.50 posted. VK3DS, QTHR.

**Atlas 210X** with NB and instruction book, $625, ONO. Don Richards. Ph. (02) 406 4368.

**Hasselblad 500C,** in mint cond., instruction book, lens hood, four filters (incl. Pola and HZ), Proxar lens attachment, leather eveready case, pigskin carry all case, 2X magnifying viewfinder, integral exposure meter, quick focus handle and eye-level sports view finder, $1,250; or exchange for equivalent value transceiver. VK2ARN, QTHR. Ph. (065) 66 8311, Monday to Fridays, any time.

**Drake 4 Line** complete station R4C Rx with 4NB noise blanker, 4 optional filters, 6.0 kHz, 1.5 kHz, 500 Hz, 250 Hz, T4XC Tx with spare set of PA tubes, AC4 power supply, MS4 speaker, MN4 matching network, TV42LP filter, mike, new cond., still in factory cartons, all hand books, connecting cables, etc., complete, $1,800. VK6LE, QTHR. Ph. (09) 293 2372.

**Uniden 2020,** ex. cond., used 4 mths., $750, ONO; CRO, ex. working order, $100; SWR and power meter, Royce 2-098, 0-10W and 10-100W, $45. VK3NIL. Ph. (03) 337 8585, A.H.

**Ampex VR650 2 in. B & W Videotape Recorder,** c/w manuals, 20 hours tape, $250; Marconi Mk. V. 3.5 in. IO camera, c/w cables, manuals, 4 turret lenses and P/S unit (gives picture but has hor. output fault), 100; TG7B Baudot teletype, $50; Free-standing 19 in. rack, $15. E. Cousins VK2ZST, 62 Jaffa Road, Round Corner 2158. Ph. (02) 651 1490 A.H.

**TH6DXX Antenna,** incomplete, requires 10 and 15 metre trap and some elements only, has owner's manual and balun, $80. VK3ZEF, QTHR. Ph. (03) 876 1987.

**KW107 Supermatch Antenna Coupler,** incl. large SWR/Pwr. meter and built-in dummy load, handles 2 switchable ants., either coax. or bal. feeders, 10 to 80m, unused, orig. carton, with manual, $235. VK2AFG, QTHR. Ph. (02) 630 2388.

**Heathkit SB301/401 SSB/CW Transceiver,** together with matching monitor scope, speaker, and all operating manuals, to be sold as complete station only, $450, ONO. VK2BIP, 6 Read Street, Khancoban 2642. Ph. (060) 76 9338.

**Unimetrics Stingray,** converted to 10m, covers 28.31 to 28.60 MHz, 10W AM, 12W PEP, RF out, suit Novice, $130. VK5ZCW, QTHR.

**RX,** amateur coverage only, needs peaking up on Rx, otherwise in good order, $110, ONO. L30853, QTHR. Ph. (053) 31 1138.

**Dentron Linear,** MLA 2500, modern, compact, with internal power supply to two Eimac 8875 tubes, bands 10-160m, absolutely as new, $995; Avo test bridge, 5 pF to 50 mFd, 50 ohms to 50 megohms, and Log. VTVM AF/RF 0-15V, $60; BWD 405 scope, 0-6 MHz, as new, $250; AVO model 8, Mk. 2, multimeter, $60, all in perfect order and cond., with manuals, freight paid. VK2BM, QTHR. Ph. (050) 32 4102.

**QM70 28-432 MHz Transverter,** 10W O/P, 432-436 MHz, $150. VK2YDY, QTHR. Ph. (067) 52 1185.

**Yaesu FT2FB** Xtals for 3 Simplex, 3 repeater ch., $140. VK2AXJ, QTHR. Ph. (02) 798 9021.

**FT200/FP200 Transceiver** and AC power supply, manual and numerous spare valves, good cond., with original cartons, $350. Mick Paget VK2APU, QTHR. Ph. (047) 39 7419, Bus.

**Yaesu FT2 Auto 2m FM Transceiver,** with inbuilt AC, DC power supplies, 1W or 10W, automatically scans 2m and stops on signal, only $200; 4 el. 20m mono band beam, $140, ONO. VK5TO, QTHR. Ph. (08) 381 1493 Bus., (08) 278 3126 A.H.

**Self-supporting tower,** 40 ft. commercial windlite C/W 3-band Hygain TH3 Mk. 3 beam, 3 years old, in exc. cond., heavy duty HB rotator and control; considering today's prices a bargain at $500, ONO. VK3ZX, QTHR. Ph. (051) 74 1144 A.H.

**Eddystone 750 Rx,** grey hammertone finish, with matching speaker, first class cond., any reasonable offer. VK5MP, QTHR.

**Uniden 2020 Transceiver,** matching speaker and mike, all mint cond., no mods., $695; Shure 444 mike, $28; Numachron 24 hour clock, $6. VK2WD, QTHR. Ph. (02) 427 6080.

**Hallicrafters HT32 SSB/CW Tx,** 100W PEP output, with two 6146 PA tubes, 10-11-80m, supplied with astatic D104 mic., owner's manual included, 240V AC operation, $205; matching Hallicrafters SX-115 10-80m, WWV CW-SSB-AM HF Rx, with variable IF selectivity, 500 Hz to 5 kHz, 100 kHz xtal calibrator, T-notch filter, variable BFO pitch control, matching Hallicrafters communic. spkr., manual, Hallicrafters best ever receiver, Dow key antenna changeover relay included, $250. Ph. (02) 36 7756.

**Antennas, Rxs, Transceivers, Power Supplies,** power trans., meters, CB, Ham magazines, books, many miscellaneous items, send large s.a.e. for lists. L30409, QTHR. Ph. (03) 546 3940, A.H.

**Icom IC202 SSB Transceiver,** as new, complete, original packing, $150; Icom IC22S FM transceiver, as new, complete, original packing, $245. Reg. VK3KK, QTHR. Ph. (03) 652 8110, Bus., (03) 469 4200 A.H.

**Rotator Ham 11-CDE,** heavy duty, with controls and brake, new, in carton, never used, $200. Will ship. VK2ATE, QTHR. Ph. (048) 61 2725.

**Yaesu FT-301D Transceiver,** complete with matching de luxe FP-301D power supply, $1,200, ONO; FV-301 remote VFO, $125; FT-221R, $600; YC-221 digital display, $75; FL2100B, $525. VK3AVE. Ph. (03) 379 1213.

**IC22 2m Mobile** crystalled for repeaters 1-8, reverse repeaters 2-8, and Simplex 37, 40, 43, 49, 50, 51, a total of 21 ch. fitted, as new cond., with mike, manuls, etc., $169, ONO. Ray VK1ZJR, QTHR. Ph. (062) 88 5624 A.H.

**Coaxial Cable,** RG58/CU, 52 ohm, ¼ in., several 100 yards rolls at $25 each, or will cut to length at 25 cents a yard. VK2RG. Ph. (02) 644 6693, between 6-7 p.m.

**Heathkit SB101,** with matching speaker, power supply and desk mic., VGC, $325; Heathkit SB104 kit, about ¼ assembled, cannot complete due to work overload, sell at less than ½ price at $400. VK3CH, QTHR. Ph. (03) 560 5150.

**Yaesu FT200 Transceiver** with FP200 power supply and manual, very good cond., $350. VK2BIW, QTHR. Ph. (02) 27 6432 Bus., (02)449 2198 A.H.

**Swan 350 Transceiver** with matching Swan 240V AC P/S home brew 12V DC P/S, complete with mic., manual and spare final tubes, $350; Pye 8207 HD low band mobile with s/state P/S, unmodified, $15. VK2BZV, QTHR. Ph. Batlow 369.

**Collins 51J4 Rx,** late model, $450; KW2000E 10-160m transceiver, $450; commercial 2 and 6m yagis with feeders, $40 each; Pye F60FM 6m base with 52.525 and 52.656, $110; Pye compact, 435 MHz, $80; S and H selective level meter, $80; and more. VK3AAR, QTHR. Ph. (03) 29 2491 A.H.

**AWA MR3,** ch. 40 xtls, most minor components replaced, 3/10 final, FET preamp and DC/DC replaced, 3/10 final, FET preamp and AC/DC supply, AM modulator elect. Aust. January 1965 with proper modulation transformer and 300-2700 kHz audiofilter, home made power supply unit, drives modulators, transmitters or MR3, with relays, etc., $30 each or offers. VK2BMZ. Ph. (02) 868 2585 A.H.

**SSTV W0LMD Board,** fully populated with back space and X2 height boards, plus full documentation, $95. VK2AIT, QTHR. Ph. (02) 86 4785.

**Realistic AX190 Rx,** 3.5-29.5 MHz, in 10 steps, excellent cond., 12 months old, $210. Ph. (03) 787 1980 A.H.

**Yaesu FT221,** complete, plus YC221 digital dial, transceiver little used, dial new, $700. VK2KI, QTHR. Ph. (02) 78 4237.

**Hygain Model 18 AVT/WB Vert. Antenna** with instruction manual (10 to 80m), in mint cond., only used for four months, $100. VK2BMH, QTHR. Ph. (02) 631 8045.

**Kenwood QR666 Gen. Cov. Rx,** exc. cond., with handbook, suit newcomer, $160, ONO. B. Bathols VK3UV, QTHR. Ph. (03) 90 6424 A.H.

**KP202 2m Tcvr** with 4 rep. ch. and ch. 40 and 50, also spare 51, $125, ONO; SL600 series HF Tcvr, have not had time to finish, $85, ONO; 2m FM Tcvr HB solid state, 2W out., not working, $20; 2 off 6m tunable power amps, solid state, $10 each; 6m SSB solid state Tx, 200 mW out., $25; additive frequency meter, $5; 6m FET converter, $5. Assorted valves, many more goodies. Have cleaned out shack and gone overseas. VK3ZUE. Ph. Mrs. Esselstrom (056) 23 6859 Bus.

# ADVERTISERS' INDEX



## WANTED

**Revox A78 Stereo Amplifier,** 80W RMS, $260; Lenco L85 record player with electronic stop and arm lift, $180. Both units as new, complete with schematics, manuals and original packing. H. Buff VK2BZT. Ph. (02) 922 2666 Bus.

**HF Transceiver,** either transistorized or valve, e.g. FT200, FT100, Swan 240, 350, etc., does not have to be in operational condition. Steve VK2BGL, QTHR. Ph. (047) 54 1096.

**FV101B External VFO for FT101B.** VK4RF, QTHR.

**Information and Circuit Diagrams** for VHF Aircraft Txs, type T-27A, 118 MHz to 135.95 MHz, and ARC1 49, 100-155 MHz; valves, type 6L6GA, 5686, 955, RL18, 2C39, 2C40, 2C42, 2C43, QQE03/20. VK2ZHS, QTHR. Ph. (02) 59 5390.

**Dead Ken KP202** hand held or sim, in any cond., for spare parts and/or possible resurrection, for around $40. Richard Cowles VK2ANB. Ph. (02) 699 9403 after 6 p.m.

**Blind Novice Amateur** (very enthusiastic) requires older style Tx/Rx, HF bands 80-10m, or SSB/AM CW Tcvr, working order not essential, or disused gear in HF frequency, we will put to good use; appearance unimportant as frequency readout/tune will be modified; will pay reasonable prices. Please write with details to Paul, C/- James Goodger VK2JO, Box 505, Bondi Junction 2022, NSW. Ph. (02) 36 7756.

**Yaesu FL2100B Linear Amplifier,** must be in mint cond. Details to VK4AGL, QTHR.

**FLDX 400/500 Tx;** will pay $300 for good unit. VK2NSE, Box 64, Quirindi 2343, NSW.

**Pair Selsyn Motors,** with transformer if possible. Particulars and price to VK4SD, QTHR.

**Owners of Bearcat 210 Scanner** — please contact Bearcat, C/- P.O. Box 122, Ringwood, to swap ideas on the use of this versatile piece of equipment.

**Drake 2B Rx and Hammarlund HX50 Tx** (obtained DXCC with them) for a good quality general coverage Rx .5-30 MHz, including SSB reception and good bandspread. VK3ACD, QTHR. Ph. (058) 21 2484.

**Small HF Mobile Txcvr,** 10-80m, Atlas or similar, CRO and HF linear amplifier. Please contact John VK2BYK. Ph. (047) 21 2328 Bus., (047) 21 2822 A.H.

**Information** (name, address, phone number, etc.) on the Melbourne based manufacturer of crank up, tilt over, amateur type towers. Contact Ron VK3CN, Box 12, Korumburra.

**Panoramoscope Model SA3,** any condition. Colin Gracie L30060, QTHR.

# SILENT KEYS

**It is with deep regret that we record the passing of —**

| | |
|---|---|
| **Mr. G. M. BOWEN** | **VK5XU** |
| **Mr. A. S. TOLLOW** | **VK2AST** |
| **Mr. G. F. DENSON** | **VK6GF** |
| **Mr. G. TAYLOR** | **VK2AUT** |
| **Mr. P. C. JAMES** | **VK2ER** |

**GORDON BOWEN VK5XU**

**On the 18th July, 1978, the South Australian Division lost one of its Life Members. Gordon was instrumental in helping to re-form this Division after the Second World War. During the late forties and throughout the fifties he displayed his leadership qualities when he held the offices of President, Vice-President, Secretary, Treasurer, Federal Councillor, Programme Organiser and operator of VK5WI. In recent years he again served as Secretary in a manner befitting a person much younger than he. Gordon was also an excellent organist and played for many years at the Kent Town Methodist Church. With his passing amateur radio has lost one of its greatest ambassadors.**

**The WIA would like to extend its deepest sympathy to his wife, Betty, his family and many friends.**

**From Colin Hurst VK5HI,**
**President VK5 Division.**

**NORMAN D. CARPENTER VK2RK**

**It is with much regret I would like to record the passing of the late Norman D. Carpenter VK2RK.**

**Norm, as he was affectionately known, died suddenly in the Murwillumbah District Hospital afer suffering a heart attack on the 13-4-1978, just one month after retirement. Norm, an oldtimer, was a member of the St. George Radio Club in Sydney. Prewar he enlisted in the RAAF and served in radar installations. After World War II he took up the position of Chief Supervising Technician at Radio Station 2MW Murwillumbah, a position he held until retirement. In the Amateur Service he was a great CW man, as well as phone, and worked mostly 80, 40, 20, and was always willing to assist beginners. Norm was a man who also worked hard for his Church and the community in general. His funeral service was well attended by amateurs from Lismore and Murwillumbah. We extend to his wife, Marie, and son, Mark, our sincerest sympathy.**

**From Eddie Bailey VK2BB.**

## WANTED KNOWN

**Video Tapes** on amateur radio will be shortly available from the WIA Executive Office as Magpubs loan service, standard ¾ in. U-matic format only.

## TRADE HAMADS

**Gilco Amateur Radio Center** — All amateur equipment is now also available at Dee Why through Horst VK2BHF. For after hours attention phone (02) 98 6249. We service most equipment at reasonable rates. Trade-ins welcome!

Join a new Member
– NOW –

KENWOOD

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# 1.8-28MHz SSB TRANSCEIVER

# TS-520S SERIES

## TS-520S/VFO-520S/SP-520

**(Antenna Coupler)**

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|---|---|
| Frequency range | 6 amateur bands from 1.8 to 29.7 MHz |
| Input impedance | 50 Ohms |
| Output impedance | 50 to 500 Ohms, unbalanced |
| Through power | 200 Watts max. |

**(Wattmeter)**

| | |
|---|---|
| Type | Through-line wattmeter |
| Frequency range | 1.8 to 29.7 MHz |
| Measurable RF power | Up to 20/200 Watts, switched |
| Kinds of RF power | Forward and reflected power, switched |
| Impedance | 50 Ohms |
| Accuracy | Better than ±10% of full scale |

The SP-820 has built-in selectable tone filters to attenuate high and/or low frequencies. You can switch between two different receiver sources. Headphones may also be used in conjunction with the filter network.

**"TRIO-KENWOOD (AUSTRALIA) PTY. LTD."**

30 Whiting Street, Artarmon, Sydney N.S.W. Australia 2064. Telephone (02) 439 4322

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| Qld: | MITCHELL RADIO CO. | (07) 57 6830 |
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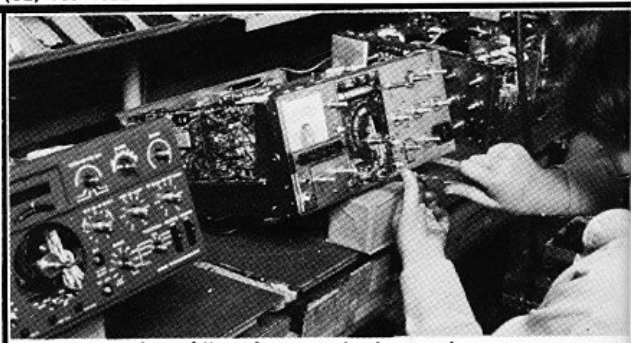

*Assembling of communications equipment*

"PS" Did you know Kenwood are to release a new solid state 30W PEP HF Mobile Transceiver with full 10m coverage, digital display and noise blanker in OCTOBER? WATCH for further details.

W.A. SUPPLEMENT TO " AMATEUR RADIO " SEPTEMBER 1978.

# The BULLETIN :-

PATRON : His Excellency the Governor,
Air Chief Marshall.
Sir Wallace Kyle, G.C.B.,C.B.E.,D.S.O.,D.F.C.,K.OF St John.

* * * * * * * * * * *

All material for inclusion in the BULLETIN, should reach the Editor by phone,mail,or on air, by the 10th og each month. Postal Address ;*
22 Salisbury St., Leederville. W.A. 6007. Phone 4442909.

CORRESPONDENCE. All other correspondence should be addressed to :-
Hon. Secretary,
W.I.A. ( W.A. DIV.),
P.O. Box N1002.
PERTH. W.A. 6001.

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GENERAL MEETING. Held on the THIRD TUESDAY of each month at SCIENCE HOUSE, 710 Murray St., WEST PERTH,commencing at 7.45 p.m. Bring a friend !

COUNCIL MEETING. Held on the FOURTH TUESDAY of each month at Scout Hall, cnr. Joseph & Woolwich Sts. West Leederville commencing at 7.30 p.m. OBSERVERS ARE WELCOME.

* * * * * * * * * * * * *

Dont shudder when the words "CHANNEL 5A " are mentioned or printed this vitally concerns you ! May be the loss of the two metre band will not gravely inconvenience you BUT who is to say that the action will stop at two metres ? The Amateur Service "occupies ? ?!! " quite a number of good spots in the frequency spectrum and envious eyes and ears have been looking and listening for years just waiting an opportunity or an excuse to G R A B.

There is not much point in several thousand Amateur Operators talking about it between ourselves - - we should be earbashing those who do not know,or choose to ignore the facts - politicians. Look where political lobbying got the CB-ers ! Have you signed the previously published letter yet ? OR better still, have you written one of your own ?If you are on nodding terms with your local member why not invite him to your shack so that you can really get to work and convince him.

* * * * * * * * * * * *

It is with deep regret that we record the passing of Wally - Peterson, VK6LW. For those of you who may not be able to place him, Wally was the grey haired gentleman who generally accompanied Dave VK6WT to the General Meetings and sat at the rear of the hall.Although not enjoying the best of health Wally endeavoured to keep in touch by operating on the two metre band and on occasions on six metres. He will be missed from our meetings and on the air.

To his family our sincere condolence.

+ + + + + + + + + + + + + + +

See - somebody Does write to me ! Though by golly it is addressed to you mob :-

Dear Readers,

Just reading through my OM's copy of the latest Bulletin and thought this would be the ideal way of thanking all those connected with the Slow Morse Practice Broadcast on 3.555 MHz every weekday night. I have listened to the sessions 3 to 4 nights every week and have really benefited. When I started I didn't know any morse code at all. After much persistance I have managed to get up to the required 10 w.p.m. for the A.O.C.P.

In order to chivy my slow OM into getting his full call ( only 10 w.p.m. morse required ) I boldly issued the challenge that I'd get my full call before him. This was in May, before I knew anything at all about radio. Now the exams are looming up although by the time you read this they'll be over. Whether I pass or not remains to be seen.

However I would like to make a special thanks to Glenn VK6KY, and his XYL Stella for 'lending' me Glenn to bring my theory up to what it is now, and for letting me sit in on those morse sessions meant for 6ZKY. Also to my OM Maurice 6ZKY / Nam for the loan of books, instruction, and patience in putting up with an untidy house.

Hoping to be able to put a callsign after my name soon,

Jenny Cliff.

It's now my turn to speak, doubtless the first of many, as I would like to add my thanks to those of my wife.

Maurice Cliff Ex 6ZKY/NAM

P.S. Somewhat premature is the ' Ex '.

* * * * * * * * * * * * * *

THANKS. THANKS. THANKS.

THANKS ! That is the message that our Secretary Peter VK6NCP would like to convey to all those who helped with the preparation of the Governor's opening speech for the 1978 R.D. Contest.

Those responsible were :-

Tom Reid
Bruce Hedland-Thomas
John Farnell
Donald Dyke
Ross Greenaway.

\- - - - - - - - - - - - -

FOR SALE. FOR SALE.

I have approximately TWO AND A HALF THOUSAND resistors for sale !

They are ¼ w, ½ w, 1/8 w, and 1 watt
and ALL at 1 cent each !

Ring 2713941 (home) or 2770355 (workig hours )

Maurice VK6ZKY.

* * * * * * * * * * * * * *

Just before winging his way to the U.K. (and return via ZS O) Lee VK6HC found time to dispatch a clipping from the "Natal Mercury ". It does pose some interesting questions and I cant help wondering just what our local boffins have to say ( if anything ) in the way of comment.

Here it is :

The Automobile Association's claim that radio interference can cause substantial inaccuracies in speed trap meters,reported in Tuesday's Mercury, is fully borne out by facts from another source.

Mr. Harold Kirby,a ham with the call sign ZS6OT, was recently trapped in the Transvaal at an alleged speed of 112.3 km/h. Since his car was fitted with an electronic speed control,he was quite sure this was incorrect. He was also transmitting at the time talking to OM bill ZS6KO.

Mr. Kirby is clearly a persistant man. He went to the Automobile Association, the Sandton Traffic Department and the Transvaal Provincial Administration.

A test was arranged for him at Kyalami race track,at a time when the Province would be routinely testing their velocity metres.

Four traps were sited close to each other and Mr. Kirby, with his transmitter switched on, drove past them at a controlled and checked speed of 72.5 km/h.

The speeds recorded by the traps were :- 635.6 km/h 102.3 km/h,54.7 km/h,and 26.5 km/h.

He was all set to submit to more tests when he was informed that the case against him had been withdrawn.

These facts are set out in a letter of his to the magazine 'Radio ZS ', to which its editor has added a footnote.

If a trapping device is not radio interference-proof,he asks,how could it ever be held to be accurate since it is impossible to tell what radio frequencies are around at any time ?

What if there are Boeings or other aircraft overhead using transmitters ? What if there is another ham transmitting nearby? What about T.V. propagation ?

Thought-provoking aint it ?

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SLOW MORSE PRACTICE TRANSMISSIONS.

At the request of Council, VK6CR, Cyril Rutledge has offered to act as co-ordinator. If you would like to assist even in a stand-by or part -time capacity,or if you have any CONSTRUCTIVE suggestions please contact him.

As we go to press I understand that Bill VK6KB has offered to do a session on Sunday evenings if the demand is there. Thanks Bill.

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So much for my appeal for news of country radio clubs,repeater groups etc - - not a dicky bird.

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Wasn't it beaut to hear and work so many Novice stations during the R.D. Contest ? They certainly helped to prove that 10 metres is a worthwhile band. WHAT ABOUT SOME NOVICE NEWS from some of you ?? ?

SHIRES AWARD. Dont forget the SHIRES AWARD (details previously published ). If you anticipate going mobile or portable in one of the less populated shires, please - please let some one know about it so that the award hunters can make full use of your presence to work that shire. If you cant find the rules or if something is not quite clear to you,contact Cliff Waterman VK6NK, who will be only too pleased to help . Remember also that Shire maps are still available at General meetings or by post.

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According to some who sat for the August CW exam the standard of morse could not be described in polite terms ! It may be of interest then to read this little snippet lifted fromthe minutes of a meeting of Federal Executive held recently. " In regard to morse code speed, it now appears that an unsuitable relay distorted the machine morse previously put out in Victoria. An additional reason to persist with pressure for quicker characters (e.g. at 10 w.p.m.) and larger spacings."

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The following article from " Q.T.C. " the official Bulletin of the Queensland Division of the W.I.A. should be of interest to newer licencees.

Notes on the Operation of the QSL Bureau:

contributed by Fred Lubach VK4RF

(a) Always use G.M.T. (U.T.) on your cards, and make sure theday and month are clearly shown,especially if sending your card via a QSL Manager. In USA 3/12/78 means 12th March 1978 . . .!
Note: A " QSL Manager" is a guy, usually a ham, who regularly receives a copy of rare DX stations' log, and undertakes to handle QSL's on his behalf. When QSL-ing direct always include at least two IRC's for return postage.

(b) Where possible ascertain a DX stations QSL Manager and write it on your card in a prominant manner - this applies especially in the case of rare countries.

(c) All cards to be pre-sorted alphabetically according to prefix with the exception of USA and Australia which should be sorted numerically. There are 12 QSL bureaux in USA...! All "ones" together,"two's" together etc., regardless of the yank prefix.
Note. ALL Japanese in any order - only one Bureau for Japan ! Rubber bands and paper strips are only a nuisance when sorting.

(d) Please limit your remarks to five words ; we have an agreement with the postal authorities re bulk postage.

(e) If a mistake is made (especially in the call sign ) when writing out your card,DESTROY it. "Altered" cards do not count for 'awards'. Always write 'zero' in a call sign with an oblique stroke through it - Ø.

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Our own VK6 Bureau is probably one of the most efficient bureaux in operation and our QSL Officer is Mr.J. Rumble, VK6RU. Jim is a most experienced DX-er and will be pleased to answer any questions about the Bureau . He also carries a supply of QSL Stickers one of which should be affixed to each outgoing card. Buy some at the next meeting ..!

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J.O.T.A. 1978 is in October - getting nearer - will YOU be in it? ?